THE DOCK & HARBOUR AUTHORITY

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Editorial.

The Port of Devonport, Tasmania.

The Marine Board of Mersey—under whose jurisdiction falls the Port of Devonport—celebrated its jubilee on June 30th, 1928. The Board was constituted by Proclamation issued by the Governor in Council on the 13th December, 1867. The jurisdiction of the Marine Board of Mersey extended to all ports, harbours and islands, between Badger Head in the County of Devon, Tasmania, westerly to Tea Tree Point (near Penguin) in the same county.

The first meeting of the Board was held at Torquay (East Devonport) on the 8th January, 1868. The ports under the control of the Board at that time being Burgess (Port Sorell), Latrobe, Devonport, Don, Forth and Leven. The control of the port on the Leven was handed over to the Leven Harbour Trust in 1889. The port on the Forth River ceased to function the same year. A progressive policy was adopted by the Board in 1890 for the purpose of improving the depth of water at the entrance and in the channel, and for improving the wharf facilities, and the bucket dredger " Davenport " and hopper " Agnew " were acquired to carry out the work. The " Agnew " was later converted into a suction dredger. Owing to the railway now serving the Port of Devonport on the Mersey, and as a result of the improved harbour facilities, trade is being centralised to this port, with the result that the ports at Don, Burgess and Latrobe ceased to function as from about the year 1900.

A comparison of the receipts for the year 1868—£244 17s. 10d.—with the financial year ending 30th June, 1928—£24,474 18s. 9d.—is indicative of the growth of the port, and the value to the country served.

When the Board was first constituted very little had been done in the way of wharfage facilities, there being only small jetties at which vessels of light draft could berth. To-day there is 1,400-ft. of wharfage for general cargo, and a special wharf for limestone 400-ft. in length on the west side of the river.

The depth of water at the entrance was such that vessels of very shallow draft could navigate the Mersey, and as late as 1884 when Commander H. J. Stanley, R.N., surveyed the port, the depth at the entrance and channel was only 5-ft. low water. This has been increased, and there is now 20-ft. low water, and with a rise of tide from 8 to 10-ft. enables vessels of over 8,000 tons to safely navigate the port.

An illustrated article appears on another page and forms the subject for this month's supplement.

Land Reclamation at Cork.

A further sum of £6,600 has been voted by the Cork Harbour Commissioners to expedite their land reclamation scheme at Tivoli, a few miles outside the city. This decision marks another step in the reclamation of more than 150 acres of land for an industrial area. The reclamation of the first five acres is nearing completion, and, in addition to reclaiming a substantial area for a railway clearance yard, the Commissioners have already allocated the earliest site available to the Russian Oil Products, Ltd., at a yearly rental of £150. It is suggested that the other oil Companies should transfer from their present premises, near one of the chief suburbs, to some site like Tivoli, thus safeguarding the lives of the citizens.

Dock Board's Helping Hand.

Mersey Docks and Harbour Board has made substantial reductions in foreign dock rates, town dues, and haulage rates, which came into operation on January 1st. Mr. Roxburgh said the Board had in mind the necessity for giving as much relief as they could to the depressed trades, and thus helping the general trade of the country. The dock rates and town dues on imported ores of various descriptions, billets, and pig-iron would be reduced by one-half, as would also those on all classes of iron and steel manufactures such as billets, tinplates, galvanised sheets, nails, spikes, railway carriages, railway wagons, and all parts thereof outwards, thus giving all-round relief not only to the raw import but also to the exported goods manufactured from it. To assist the export of bulk vegetable oil they proposed in the same way to reduce by one-half the dock rates and town dues on imported seeds, nuts and kernels, and also those on the oil extracted therefrom and exported. Other goods which would benefit were cotton and wool (the inward dues on which had been reduced by 1s. per ton), aluminium, copper and lard imported foreign. Motor cars and motor wagons for export had been put on a tonnage basis at the request of the trade and the reduction in the outward rate was equivalent to 50 per cent. The inward foreign dues on all classes of imported wool had been reduced by one quarter. The charges for railway haulage were being reduced by 33⅓ per cent. from which a benefit would accrue to all classes of goods dealt with under the haulage system both inwards and outwards. Apart altogether from the derating benefits, the Board had confirmed the recommendation of the Finance Committee that as from the 1st of January next, inclusive, the dock tonnage rates and wharf rates on the various classes of foreign vessels shall be reduced by 5 per cent., thus restoring the abatement which had to be withdrawn in September of last year.

The New Oldenburg Harbour.

In extension of the lower Hunte, which has been approved of in order to have facilities for 1,000-ton vessels, the harbour question of Oldenburg will also be solved. At present the junction of the Kustenkanal with the Hunte is so placed that time and again vessels have been forced by the strong current against the shore and damaged. With the extension of the Lower Hunte the right shore (south) from the Amalienbruecke to the Glashuette or railway bridge will be set further baek, thereby making a larger harbour basin. The project provides for berths on the south side opposite to the Schlachthof. This is necessary because the stopping of vessels in front of the railway bridge will be unavoidable. The passage under this bridge is to allow for two vessels in future. Also, on account of this obstacle to traffic, berths for barge trains will be provided on the other side of the bridge. It is to be regretted that funds are not sufficient and that apparently no agreement has been reached with the Reichsbahn to transfer the railway bridge elsewhere.

The Hunte under the railway bridge is to be widened, entailing the raising of some houses, to a width of 62 metres at high tide near Drielake.

Port of Aden.

The complaint is heard frequently, and, strangely enough, one hears it most often from local shippers, says the Indian *Daily Mail* in the course of a leading article, that Aden is fast losing its position among the Arabian ports. In view of this, it is interesting to note that, in a recent report, the American Vice-Consul at Aden (Mr. Cloyce K. Huston), lays particular emphasis on the growing importance of Aden as a world emporium and as a distributing centre for the surrounding region. It is true that direct shipments to and from other rising ports of the district have been increasing, but the port records of Aden show a substantial increase in the traffic over recent years. The number of ships entering the harbour has increased from 1,204 in 1912-13 to 1,575 in 1927-28. If direct shipments to other ports are increasing and shipping at Aden also is manifesting a steady rise, it can only mean that the amount of traffic for the entire area is on the increase. Aden's greatest handicap is the absence of docks or docking facilities, the cargo being handled with the aid of barges and lighters. It is in this particular respect that Aden has most to fear from competition by other ports.

Notes from the North.

New Dock Crane.

A TYPE of dock travelling crane new to Merseyside has just been put into service at Birkenhead by Messrs. Bibby Bros. & Co., Ltd., the well-known shipowners. Manufactured by Messrs. Ransome, of Ipswich, the crane, which has a load capacity of six tons, consists of a motor vehicle carrying a derrick, and in operation it solves a vexed problem, taking the crane to goods to be lifted instead of having to convey the goods to the crane. The motive power is petrol-electric, a petrol engine being used in connection with a dynamo. Three motors transmit power to the driving, crane lift, and derrick lift operations, so that all three operations can be carried out simultaneously. In appearance the vehicle at first glance bears some resemblance to the familiar motor fire-escapes, the derrick when not in use lying flat and projecting beyond the length of the car. It differs, however, from the ordinary motor vehicle in several directions. The rear wheels are smaller than those in front, and they are rather closer together. This is because steering is from the back wheels, and the arrangement is such that the machine can turn completely round in its own length, a factor of considerable importance in congested dock and station areas.

The controls of the machine are extremely simple. The operator, sitting in front as in an ordinary motor vehicle, has an ordinary steering wheel for the car, and on his right three levers control the lifting and derricking operation. There is an accelerating pedal and hand brake for travelling operations, while auto-magnetic brakes are provided for the derrick, which makes for smoothness in operation. The vehicle has a wheel-base length of 9-ft., while the over-all width is 7-ft. The derrick has a lift of 20-ft., but with the derrick flat the vehicle can pass beneath a 14-ft. gateway.

Lower Dock Rates.

Mersey Docks and Harbour Board have reduced the inward foreign dock rates and town dues on tea from 4s. to 2s. 6d. per ton, less 5 per cent. per ton.

Llandudno Sea Defences.

Llandudno Council has made a spirited protest against what one member described as " nothing but red tape " in the official attitude towards the £13,000 scheme of sea defence works resolved upon by the Council. A deputation waited upon the Unemployment Grants Committee and the Ministry of Health to press the Council's case in respect to this and other schemes of work as being eligible for grants in aid, and asked the Minister of Health to waive a suggested further enquiry into the sea defence scheme on the ground that one of their inspectors was fully acquainted with the situation. The Council had since received notification that another enquiry would be held.

Carriers Dock, Liverpool.

The use of a portion, 300-ft. in length, of the open quay at the south side of the Carriers Dock, which for the last six years has been employed as a place at which common petroleum may be discharged and shipped, has been discontinued.

A Sunken Pontoon.

Ferry goods traffic at the George's Landing Stage, Liverpool, was disorganised recently by one of the pontoons supporting the floating roadway suddenly filling with water, which made it unsafe for vehicles. Traffic was able to proceed as usual, though slowly, along the opposite side of the roadway.

New Landing Stage Regulations.

The Mersey Docks and Harbour Board have adopted a revised code of bye-laws for regulating the use of the Liverpool Landing Stage and Prince's Jetty.

Pile-driving in the Ribble.

Defence works against floods are being carried out at Preston. The task of casting the 12-ft. piles has aroused considerable public interest on account of the novelty of the processes. In making these piles a framework of steel rods and wire mesh is placed in the casting boxes, which are filled with a composition of granite chippings, " ferro-crete " and sand, and allowed to set. Between the wall at the new bridge and a point at the end of Wolseley Road (just beyond the West Lancashire Railway bridge) 255 of these piles will be driven, 8-ft. apart, into the river bed. Each pile has eight steel rods projecting 6-ft. above the concrete casting. These will form the main pillars of the wall that will border the footpath. Other steel rods are to be laid across the top, and around meshed reinforcements the ferro-concrete wall will be moulded. The work of driving the piles will be commenced very soon. The punch of the pile-driver is specially slotted to fit over the projecting steel rods, and the impact of the " rammer " will impinge on a heavy steel boss at the top of the rods.

Fifty-year Old Pump.

The Works Committee of the Mersey Docks and Harbour Board has submitted a recommendation that the engineer be authorised to arrange for the pumping plant at the Langton graving docks to be replaced by two sets of electrically-driven centrifugal pumps and for certain alterations to be carried out to the existing culverts, etc., at an estimated cost of £18,000. The existing pumps were installed in 1878. The proposed new pumps will be able to pump out the graving docks at about twice the rate of the existing plant and it is estimated that the saving in the cost of working the pumps will be about £2,250 per annum.

Lighthouse for Sale.

Negotiations have been in progress between the Wallasey Corporation and the Mersey Docks and Harbour Board for the purchase of Leasowe Lighthouse, one of the principal landmarks of Merseyside. The Wallasey borough engineer is preparing a further report in regard to the proposed purchase. The Corporation has, it is stated, no particular use for the lighthouse which has been offered for sale and has failed to find a purchaser, but it is felt to be desirable in view of the future possible development of this part of the Moreton area to acquire the site of the lighthouse and the surrounding estate of 4 acres adjoining Leasowe Common which now belongs to Wallasey.

Bromborough Dock Works.

Parliamentary powers are being sought by Lever Brothers, Ltd., to authorise the company to abandon the construction of part of the Jetty Work No. 4, authorised by the Bromborough Dock Act, 1923; and to extend the periods limited by the Act of 1923 as extended by the Bromborough Dock Act, 1928, for making and completing the works authorised by the Act of 1923.

Proposed Bootle Ferry.

Bootle Council have received a letter from the general manager of the Mersey Docks and Harbour Board intimating that the board are of the opinion that the establishment of an additional ferry service would not only interfere with the development of the Dock Estate, but also with the navigation of ocean-going steamers. The Board has intimated its willingness to meet the chairman and deputy chairman to consider the matter and an interview is to be arranged.

Fleetwood Sea Defence Works.

At the Ministry of Health Enquiry in relation to the Fleetwood Council's application for sanction to borrow £29,000 for work on sea defence, Mr. A. Cottam, in describing the sea defence work, said the Council now owned or had agreed to purchase the foreshore rights between the lower lighthouse and the northern boundary of Rossall School, whence the Council had constructed a wall over 1,500 yards in length. They also constructed sea defence works in a concrete apron and a promenade from a point near Fleetwood Pier to a foot-walk nearly opposite to the Mount Hotel. The foreshore behind these works had been developed for the purposes of recreation. The present proposal was to connect the existing sea wall and concrete apron by a further sea defence work the cost of which had been expected to rank for unemployment grant as a non-productive undertaking. When completed the works would form a complete chain of sea defence from the northerly boundary at Rossall School to the River Wyre and thus afford full security from flooding by the sea, and would also enable the Council to reclaim permanently a considerable area of land for recreative and other purposes.

The inspector called attention to the fact that there had been £6,000 over-spent on the new sea wall. How did they propose to provide for that.

Mr. Cottam said there were two courses open. They could either apply to the Ministry for sanction or take from the Council's revenue from the sale of gravel from the foreshore.

The Inspector: " This gravel seems to be a very useful thing to you."

£3,000,000 Dee Scheme.

At a private meeting of the Dee Conservancy Board held at Chester a discussion took place in regard to the proposed new bridge over the River Dee from Hilbre Island to the Point of Ayr. It was resolved that the Board should defer its decision until more information is received in respect to the question of navigation. The scheme which the Board had under consideration has been submitted by Messrs. Wilton and Bell, chartered civil engineers of London, and deals with the proposed bridge and embankment across the mouth of the River Dee. It is suggested that the scheme will be of great value in view of the opening of the Mersey Tunnel and that as a connecting link from the vicinity of West Kirby to the Point of Ayr on the Welsh Coast, it would greatly reduce the distance between

Notes from the North—continued.

Liverpool and the North Wales Coast. Dealing with the question of navigation, the scheme states that the problem of maintaining and improving the navigational facilities of the River Dee and its amenities was of primary importance to the towns and communities on its banks. It is argued that the regulation of the River Dee, outlined in the scheme and which is complementary to the construction of the embankment and bridge, will lead to great improved navigational facilities both to the towns on the Welsh bank of the Dee and in a lesser degree to Chester. A rapid development of commercial enterprise on the Welsh bank of the Dee, of great benefit to that area, would be the normal result of giving the local towns those reasonable shipping facilities which can be obtained only where adequate depths of water are available for shipping. Roughly speaking, the idea is to build an embankment across the mouth of the Dee from West Kirby to the Point of Ayr. The proposed embankment would carry both a railway and a roadway—the double line of rails going over a 40-ft. roadway when crossing the bridge. It would run from the north end of West Kirby to a point near Talacre.

Manchester Ship Canal.

News of satisfactory progress comes from the Manchester Ship Canal Company. For the first eleven months of this year the gross revenue receipts showed an increase of £19,000 over the corresponding period of last year, the returns being £1,302,441 and £1,283,381 respectively. The expansion in traffic has been regular throughout the year, but in the month of November a set-back was experienced, traffic receipts for that month being £1,128 less than in November, 1928. In recent months some improvements have been effected in the steamship services to and from Manchester. There are now fortnightly services to the Pacific Coast for which two steamship lines are responsible and a similar service is in operation between Manchester, New York and Boston. Recently the railways at the Port of Manchester have been extended and new plant and equipment installed where required including a 60-ton floating crane. At the lower end of the canal the policy of providing more and more facilities for receiving and handling cargo is encouraging trade, particularly at Ellesmere Port and Stanlow. The total oil storage capacity at Stanlow is now about 110,000,000 gallons.

Navigation of the Manchester Canal at night is becoming a regular practice, following upon the fixing of searchlights on steamers. The "City of Paris," many of the Manchester liners, and other vessels, have navigated the canal by this means and so the old prejudice against steaming along the waterway in the dark is disappearing.

Mersey Tunnel Progress Report.

To the Mersey Tunnel Joint Committee on 11th December, the engineers reported that an average of 48.4 per cent. of the work had been done on the three contracts now in operation and the total number of men employed was 1,410. The value of the work to date was £1,226,865 or 43.3 per cent. of the total of £2,833,067 involved in the three contracts. The joint engineers, Messrs. Basil Mott and John A. Brodie reported that on the contract for the construction of the 44-ft. diameter iron-lined tunnel between the shafts of George's Dock, Liverpool, and the Morpeth Branch Dock, Birkenhead, the estimated value of the work to date was £955,390 or 67 per cent. of the total. The work was in active progress. The enlargement of the original headings to the full-sized tunnel was proceeding at five working faces. The total volume of excavation done to date was 194,000 cubic yards or 74 per cent. of the total of 260,000 cubic yards in the contract. Of the cast-iron lining there were now in place 35,500 tons or 67.5 of the total 52,600 tons in the contract. This is 10 per cent. ahead of the scheduled programme. The number of men employed on this contract was about 720. Practically the whole of the upper half of the cast-iron lining was in place, there being only two closure lengths lacking. The special rings were now being made. Work was in progress on the lower half of the cast-iron lining at five working faces and some 40 per cent. of this half was now in place.

On Contract No. 3 comprising the construction of the full-sized tunnels on the Birkenhead side, the estimated value of the work accomplished to date was £151,415 or 20.2 per cent. of the total. The volume of excavation done to date was 60,000 cubic yards or 32.5 per cent. of the total of 185,000 cubic yards in the contract. On Contract No. 4 comprising the contruction of the full-sized tunnels on the Liverpool side, the estimated value of the work accomplished to date was £124,060 or 18.5 per cent. of the total. The erection of the tunnelling shield which would be used to drive the tunnel under Dale Street had been started. Underground the tunnel work was proceeding at eight faces. The volume of excavation done to date was 45,670 cubic yards or 26.2 per cent. of the total of 174,500 cubic yards in the contract.

Port of New Orleans.

Continued Increase of Ocean Shipping at New Orleans.

A largely increased movement of ocean shipping during the month of November, 1929, is indicated by the records of the Board of Commissioners of the Port of New Orleans. There were 257 deep-sea arrivals, aggregating 1,029,746 gross tons, or an increase of 18 vessels and of 94,631 gross tons in comparison with the shipping of the corresponding month of 1928. There were 260 departures, an increase of 16 vessels. Of the total tonnage arriving using the New Orleans wharves, 799,748, or more than 77 per cent., used the public landings and sheds operated by the Board. The Board's banana conveyors during November handled 1,664,609 bunches of bananas, or 134,193 more than in the same month of last year.

Arrivals of deep-sea vessels during the month were as follows:—

Flag	Number Vessels	Gross Tons
American	139	581,241
British	21	138,717
Brazilian	2	11,276
Belgian	1	4,974
Colombian	1	2,054
Dutch	3	19,892
Danish	5	16,249
French	3	14,727
German	6	28 660
Honduran	35	91,726
Italian	5	30,393
Nicaraguan	4	6,276
Norwegian	27	67,473
Panaman	2	1,336
Swedish	2	10,550
Spanish	1	4,202
Total	257	1,029,746

There arrived in New Orleans harbour during November 263 river craft of more than 25 tons hull measurement, with an aggregate tonnage of 97,874, barges, tugs, and steamboats. In the inner harbour navigation canal 746 vessels of all types were handled, aggregating 331,382 tons measurement, including ocean steamships as well as smaller craft of all descriptions.

Recent Contracts, Board of Commissioners of the Port of New Orleans.

Among the recent contracts authorised by the Board of Commissioners of the Port of New Orleans during the last half of November were the purchase of 200,000-ft. b.m. of cresoted yellow pine timber from the American Creosote Works for use in the Press Street wharf construction, $13,290; purchase of eighty 85-ft. and forty 80-ft. creosoted yellow pine piles from the Gulf States Creosoting Company for use at the same wharf, $6,200; purchase of 350,000 wool sack patches from Mente and Co. for use at the public cotton warehouse, $45,360.

The Commissioners also have purchased from Alvin T. Howard the yacht "Buddy," for use as a harbour inspection boat, changing her name to the "Hugh McCloskey" in honour to the memory of the late Hugh McCloskey, former President of the Board. The purchase price was $29,500.

Space at the foot of Canal Street has been dedicated by the Board for the erection of a suitable memorial to Captain James B. Eads, builder of the jetties at the mouth of the Mississippi.

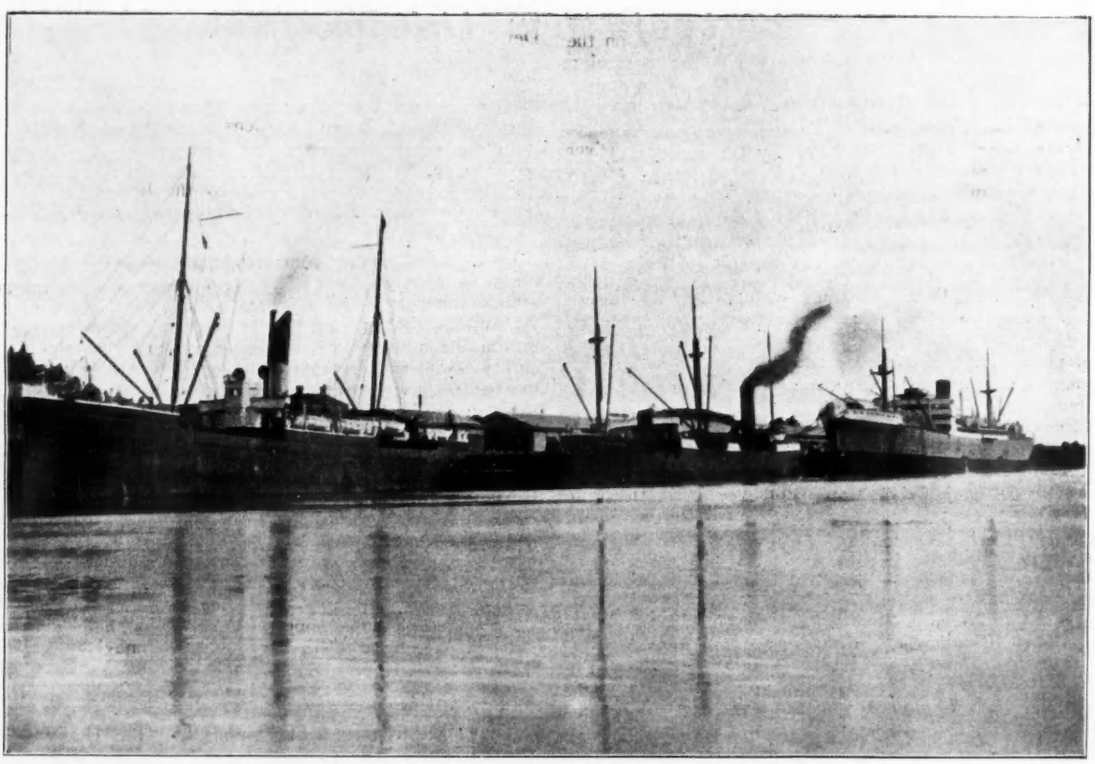
Rhine Shipping.

The Press reports that shipping on the Upper Rhine has started again. It was interrupted by an eight-days fog, from which a scarcity of barges in Rhine-Ruhr ports and a rise in freight rates resulted.

The Duisburg Marientor lock has been finished and the lock opened to traffic. The total cost, including all necessary building, is 6,000,000 marks. The lock helps protecting the town of Duisburg against inundation.

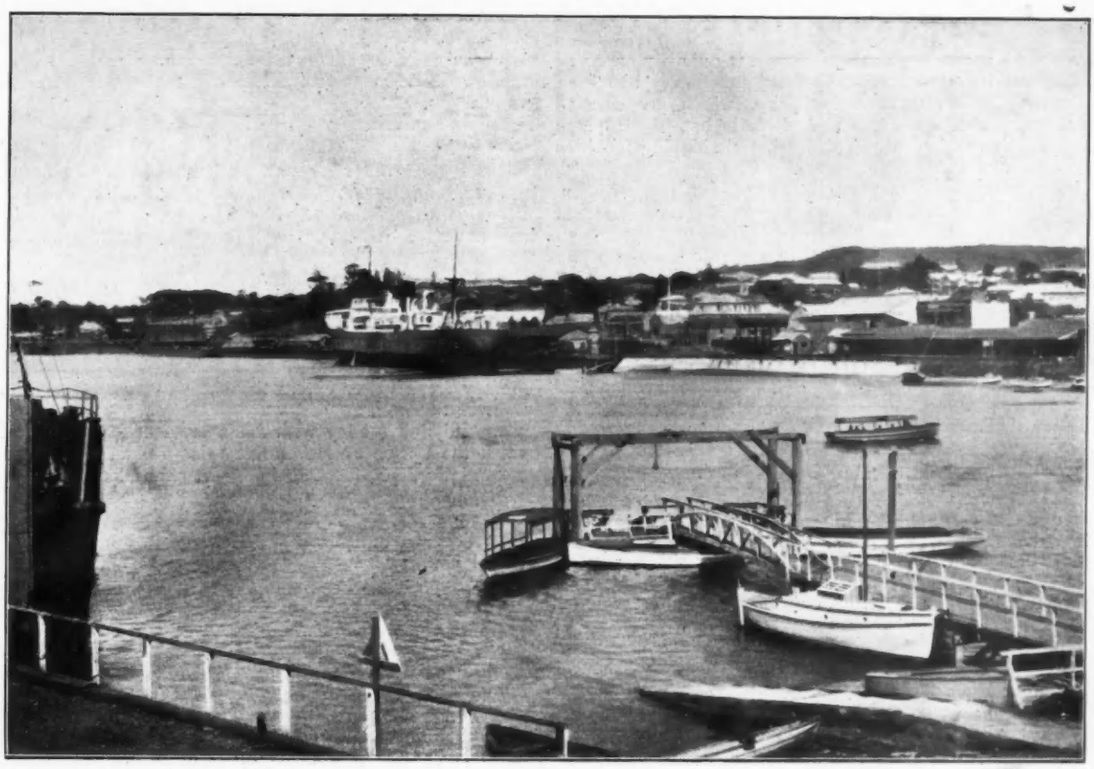
The Port of Devonport, Tasmania.

The "Port Gisborne" approaching the Wharf, Devonport.



Some of the Vessels berthed at the Port of Devonport.

The Port of Devonport, Tasmania.



The Harbour, Devonport.

IN 1928 the River Mersey, Tasmania, was practically unknown. Dense forests of eucalyptus, 250-ft. high and of large girth, came in places to the river's edge. These forests also contained tree ferns 30-ft. high, sassafras, blackwood, wattle, and numbers of other trees. In the swampy places impenetrable ti-tree stood thickly. In all, it looked unpromising, and in that day no one would vision the port's present appearance. Two large towns, Devonport and Latrobe, are within six miles of one another, with farms almost on the water's brink and a fertile productive farming district stretching for many miles in every direction. The idea of large secondary industries such as cement, shale oil, limestone, and other productions would have been scouted.

In 1838 there were only four settlers between Tamar River and the extreme west of Tasmania. In 1928 the population of this part of Tasmania was approximately 55,000.

The Establishment of Marine Boards.

Until 1857 all " marine matters " were administered from the capital, Hobart. In December of that year two Marine Boards were formed, Hobart having control of the southern part of Tasmania, and Launceston controlling the northern portion.

The Marine Board of Mersey was created under 31 Vic. No. 30, and first met at Torquay (now East Devonport) on January 8th, 1868—62 years ago.

From 1868 to 1889 the Board sat irregularly; there was one interval of 21 months between meetings, which were held at Torquay, Don, Latrobe, Ulverstone, and Forth. The Board's jurisdiction was from and including Port Sorell westward to Ti-tree Point, Penguin. On September 30th, 1889, the boundary to the westward was contracted to " between the Don and Forth Rivers."

The Board became an elective body by an Act passed on November 28th, 1903, coming into force " on or before the third Thursday in January, 1904." The voting district covered practically what are now the three municipalities of Devonport, Latrobe, and Kentish. Nine Wardens were elected; period of office three years; three Wardens to retire annually in the method appointed by the Act. A consolidating Act was passed in 1921, 12 Geo. V No. 60, which did not create any material alteration in the Board's duties, jurisdiction, or electoral boundaries.

From 1868 until 1884 very little work was done. A few small jetties were erected at about the present port of Devonport, but most of the energy and money were expended on places now abandoned—Latrobe Inlet, Don River, Forth River, etc. About 1884 attention was directed to Devonport (then called Torquay on the east side and Formby on the west side of the river), work being mainly on the east of the river, owing to this district being more developed.

Extensions in 1887 to West Devonport of the railway from Launceston—which links up with the other Tasmanian lines—caused the western side of the river to promptly advance, and from that time the progress has been constant, until now Devonport is in importance the third port and town in Tasmania.

Perhaps the greatest period of progress has been the 38 years 1890 to 1928, especially the last ten years of that period. Honour is due to Wardens of former years, including those prior to 1890. Present Wardens are building on their foundations and are profiting by their experimental work.

The progress made in the various periods is clearly illustrated by figures which were compiled by the Board's secretary, Mr. C. V. Wellard, and given in succeeding columns.

Harbour Improvements.

Capital Expenditure (excluding Maintenance and Establishment)

Prior to 1868 port matters were controlled from Launceston through " local authorities " (names not discoverable). Little work was done, and of the three small jetties two were privately owned as late as 1874.

Even after the formation in 1868 of the Marine Board of Mersey the Government seems from time to time to have granted various sums of money, which were spent by the Lands Department. It is recorded in the Board's minutes that the Board expended in the Mersey River from 1868 to 1889:—Formby and Torquay (Devonport), £2,631; Latrobe Inlet, £2,724.

In 1884 and 1887 Government grants were made amounting to £9,300. Of this sum £1,200 was devoted to the erection of a jetty at Victoria Point, Torquay (East Devonport), and the balance, £8,100, appears to have gone to the erection of a small wharf at West Devonport (Formby), to purchase of a Priestman grab dredge, £1,700, and to the cost of dredging.

On Devonport (Formby) becoming the railway terminus in 1887, a small extra length of wharf was added and the Railway Department was given " running rights " over it. The whole of this wharfage was scrapped in 1912-14 under Engineer Keele's plan and scheme of works, and 1,200-ft. of wharf in one alignment was built.

Early in 1916 the Board completed another 400-ft. of wharf immediately to the south of the existing wharves, on which were erected limestone bins capable of holding 6,000 tons. This

The Port of Devonport, Tasmania.

product, which arrives at wharf in specially constructed bottom-tip trucks, is emptied into a hopper and loaded into the bins by means of a conveyor belt. Chutes convey the stone from the bins into vessels alongside at the rate of up to 2,000 tons per hour.

The export of cement (manufactured at Railton, 13 miles from Devonport) commenced in 1926, and the quantity exported in 1927 amounted to 14,062 tons. Extra machinery has been erected by the Goliath Cement Company, which proposes to largely increase the output. The Board has had plans under consideration which will result in special shipping facilities for this commodity.

As the result of developments which are being made by the L. & N. Company near Latrobe in the extraction of oil from shale, it is anticipated that the Board will soon be called upon to make provision for shipment of this product.

There are immense acreages of so-called second and third class lands within reasonable distance of the port which have been left undeveloped, having been passed by in favour of the better-class soils. Small experiments have shown that the bulk of this is capable of utilisation as orchards or as grazing lands after being properly treated and planted. These lands will in time largely increase the output of the port.

Total capital expenditure of the Board:—

	£	s.	d.
From 1890 to 1907	66,702	2	6
From 1908 to 1919	89,560	4	0
From 1920 to 30th June, 1928	69,321	4	7
	£225,583	11	1

This work has been paid for by the following sources:—

	£	s.	d.
Loans from Government	155,000	0	0
Grants in aid	42,404	13	3
From the Board's Funds	28,178	17	10
	£225,583	11	1

Revenue.

Revenue figures for the past six years are as follows:—

Year.	Inward Wharfage.	Tonnage Dues.	Export Wharfage.	Pilotage and Exemp.	Storage.	Limestone Wharfage.	Miscellaneous.	Total.
	£	£	£	£	£	£	£	£
1922-3 ...	3,105	5,265	5,095	1,004	647	1,680	1,059	17,855
1923-4 ...	4,165	5,942	4,481	1,078	655	3,996	1,280	21,597
1924-5 ...	3,172	5,072	3,655	1,303	526	5,529	1,048	20,305
1925-6 ...	3,146	4,800	3,203	925	504	5,295	1,418	19,291
1926-7 ...	3,969	5,848	5,380	868	420	5,636	1,826	23,947
1927-8 ...	3,997	5,615	6,781	1,069	646	4,520	1,568	24,196
Total for 6 years	21,554	32,542	28,595	6,247	3,398	26,656	8,199	127,191

Exports.

Exports for 1926-7 were £562,076, whilst 1927-8 showed an increase, the figures being £591,242.

In this connection it is interesting to note that an available official return for the twelve months ended June 30th, 1863, gave the value of exports from Port Frederick, Mersey River, as £12,746; of this £2,000 was timber and over £3,000 wheat. For the twelve months ending June 30th, 1928, the value of exports from Devonport, Mersey River, had increased to £591,242, approaching a fifty-fold increase.

Surveys, Plans and Soundings.

In the early days the river was bar bound, as were all the rivers on the North Coast excepting the Tamar. As late as 1878 the bar could on calm days be forded on foot at low water.

Thomas Townshend made a survey of the port about 1875-1880.

Commander Stanley reported 5 ft. L.W.O.S.T. in 1884, supplying a survey, plan, and report to the Government.

R. and A. C. Hall re-surveyed for the Board in 1892. Scale of plan, 2 chains to 1-in.

In 1903 Ernest Lodder made a very comprehensive survey of the port, laying down bench marks and taking borings of the bed of channel and harbour. This survey was very complete, and the information obtained at that time has been of great assistance to the Board in later years in connection with the Port's development.

Napier Bell in 1890 supplied a "scheme of works," which was "received and adopted" by the Board.

The Admiralty survey ship "Fantome" visited the port in 1908 and made a survey of the harbour and its approaches. This work was carried out by Lieut. F. May, R.N. Strange to relate, the once trim ship "Fantome" has returned to Devonport to end its days, not as a survey ship, but as a coal hulk.

Engineer Joseph Wilks in 1925 made a complete survey, the figures being plotted on Lodder's plan. He placed a number of ferro-concrete bench marks for service in connecting up his survey at a later date.

Soundings in channel and all necessary parts of the port are taken monthly by the Board's officer.

During the past 38 years the port has been immensely improved. Several obstructing points have been removed. Where there was originally 5-ft. at the entrance there is now 20-ft. L.W.O.S.T., with a channel 200-ft. wide leading in about a mile to well-protected wharves where ships of over 8,000 tons lie in perfect safety and have at L.W.S.T. 26-ft. of water.

Dredging.

Until 1882 the river and harbour was in its natural state, no dredging having been done. In the harbour (Devonport Estuary) there were two channels, very narrow at low water and having a depth of only a few feet; one was on the western and one on the eastern side of the river or estuary.

Above or to the southwards of Wood's Point, from Victoria Bridge, a deep channel with high rocky banks extends for a few hundred yards and then opens out into the Latrobe Estuary, which is extensive but shallow; at the south-east end of this opens the Latrobe Inlet, whilst slightly to the westward the Mersey fresh water enters the salt-water estuary. Here is the limit of tides. Early days of shipping saw the Inlet and Bell's wharf adjoining busy with small craft of 200 tons downwards. With the uprise of Devonport this gradually disappeared.

Dredging, commenced in 1882, was done by Government plant and was largely controlled by the Lands and Works Department.

At first dredge plants were loaned free of charge; later the Board paid working expenses, and from about 1890 controlled the working and decided where dredging was to proceed. From about 1910 the Board paid the Government rent for the "Davenport" ladder dredge and "Agnew" self-propelling barge. These were purchased by the Board in 1918, and all working became entirely under the Board's control.

In 1880 a Priestman grab was purchased, but the ship carrying it was lost.

In 1882 another one was procured, at a cost of £1,700, with punt, etc.; sold in working order in 1924.

1884: The self-propelling barge "Agnew," fitted with a grab dredge, was at work; cost stated as £12,772.

1890: The ladder dredge "Davenport" was purchased on behalf of the Government from South Australia for £12,000.

1898: The "Agnew" was converted to a suction dredge by the Board.

1903: The suction dredge "Neptune" was hired from Sydney for a period.

1904: The "Agnew" was fitted with an entirely new suction plant by the Board.

1911: The Government suction dredge "Macquarie" (located at Strahan) having visited Devonport for overhaul, advantage was taken of the visit to hire her for three months' maintenance dredging.

1912: Tug "Australia" purchased.

1912: Another Priestman grab was purchased, named "Priestman No. 2." Fitted on a large pontoon, it did excellent work, being larger than the "Priestman No. 1" and of a much-improved type.

1924: "Lienta," self-propelling hopper barge, 10 knots, 650 tons capacity, electrically lit, was purchased from the Admiralty.

1925: The ladder dredge "G. Ward Cole" was bought from the Melbourne Harbour Trust and has done very satisfactory work.

Ferries.

Ferry-boats plied as early as 1855 under police licence.

In 1890 a Government proclamation defined ferry limits. A vehicle punt, on a wire rope, ran from 1870 till about 1901. In 1925 pontoons were established at East and West Devonport—Victoria Point and opposite. A 15-minute motor-boat service was commenced and the rights leased for seven years, the lessee to find specified boats, pay an annual rent, and collect fares according to the Board's schedule.

Bridges, Roads and Railways.

Bridges, roads, and railways are as essential to a port as water and wharves.

In 1878 the nearest metalled road was 37 miles away and the railway as far distant. Carters of goods had a strenuous time, and all classes of men in those days underwent experiences which would now be considered the extreme of hardship.

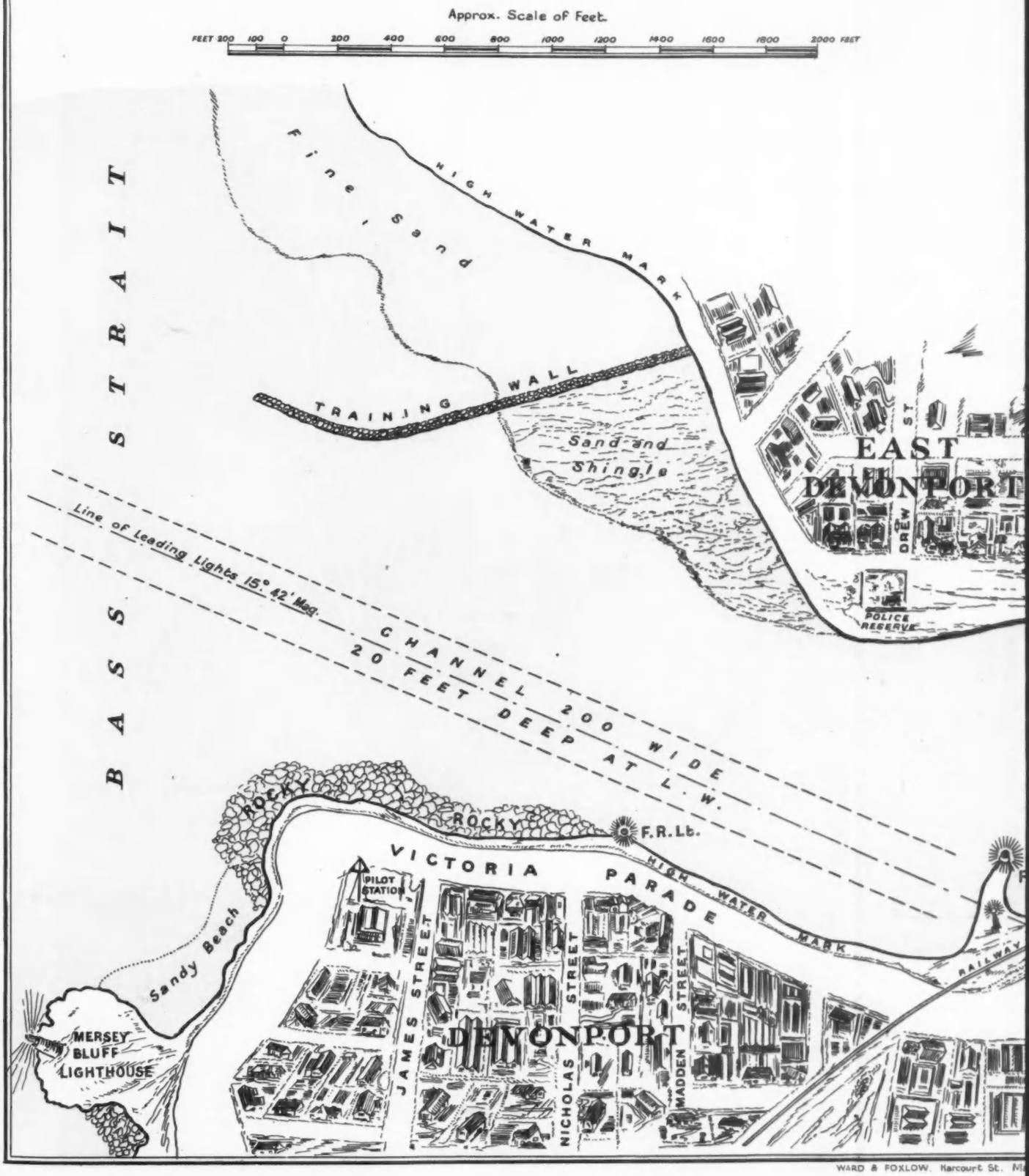
Good roads are now the rule, thanks to the voluntary labour of members of the original Road Trusts and of the Town Boards and Municipal Councils which followed.

The railway came to Devonport in 1887 and, with the good roads, started the up-growth of the port and sustained it in its continuance of progress. The first bridge across the River Mersey was built at Latrobe in 1859.

DEVONPORT HARBOUR.

TASMANIA.

UNDER THE JURISDICTION OF THE MARINE BOARD OF MERSEY.



WARD & FOXLOW. Harcourt St. M

DOCK AND HARBOUR AUTHORITY, JA

RBOUR.

OF MERSEY.

1800 2000 FEET

WARD & FOXLOW. Harcourt St. Marylebone W.1. 5480.

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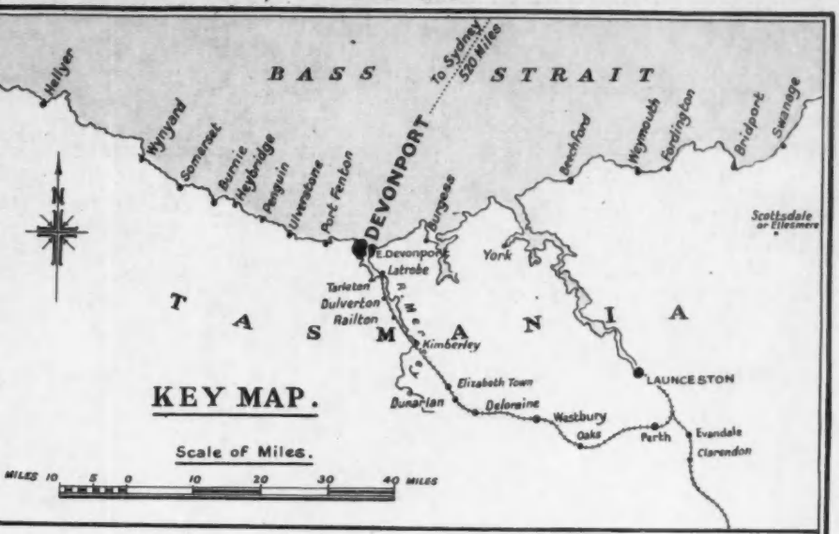
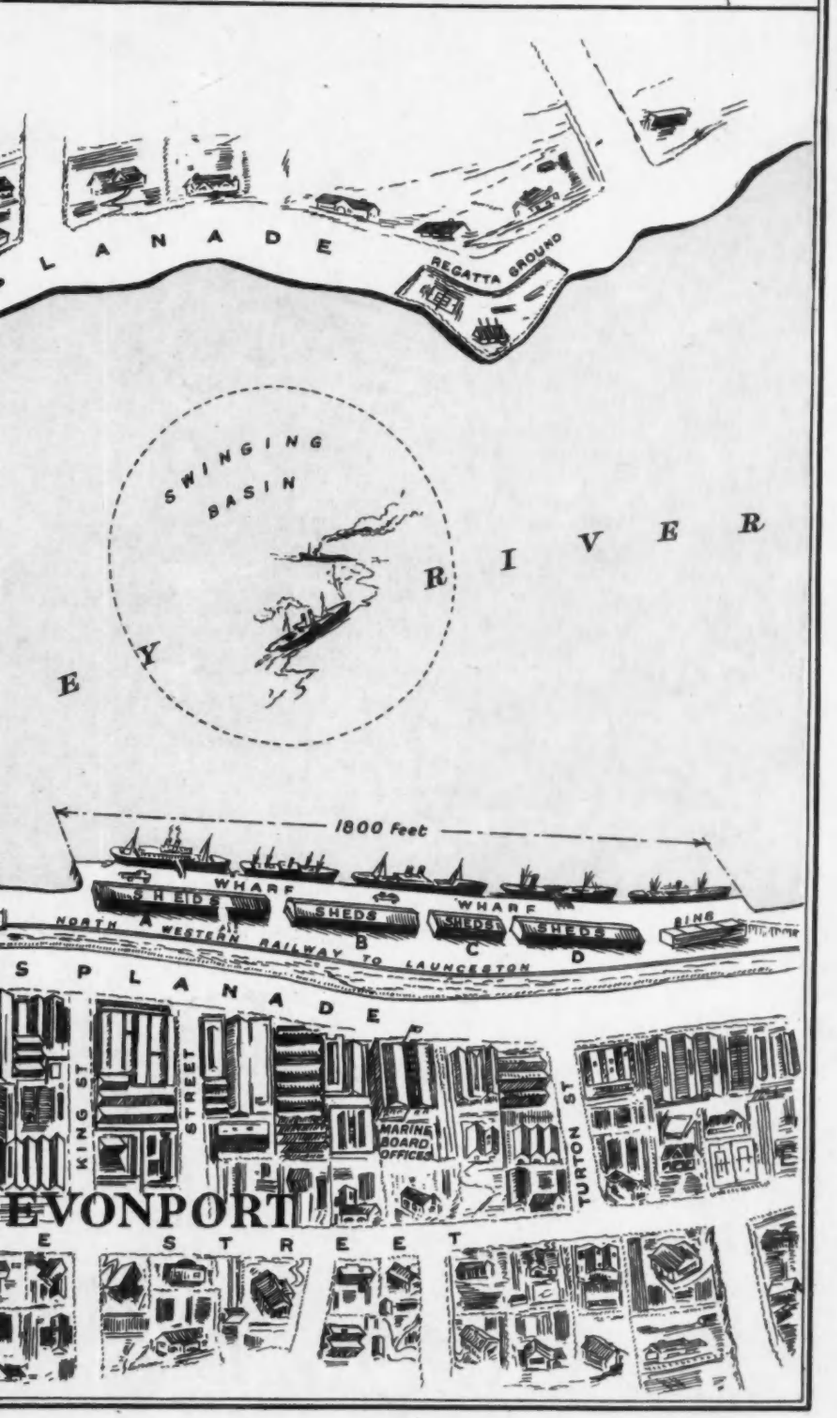
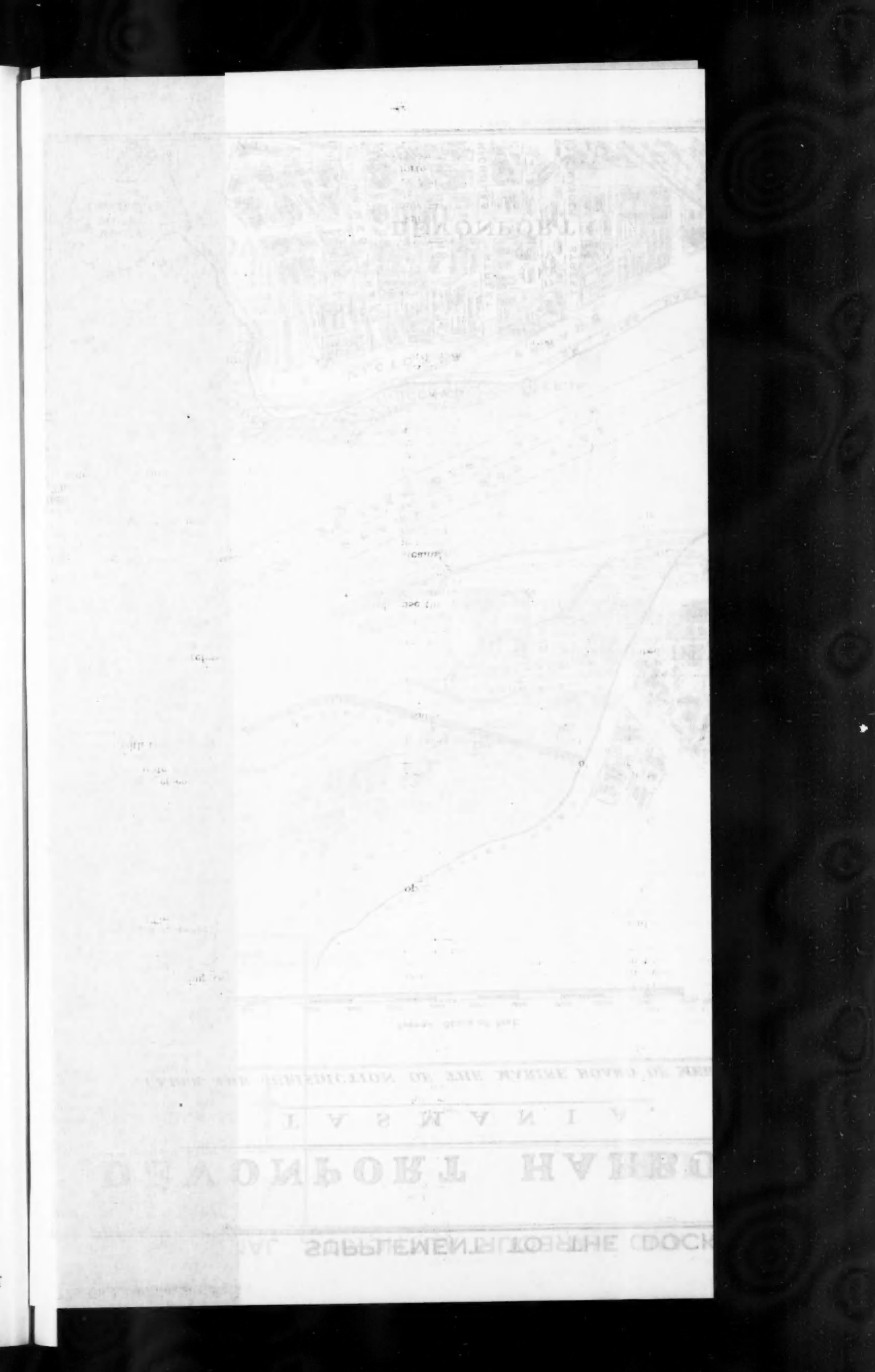
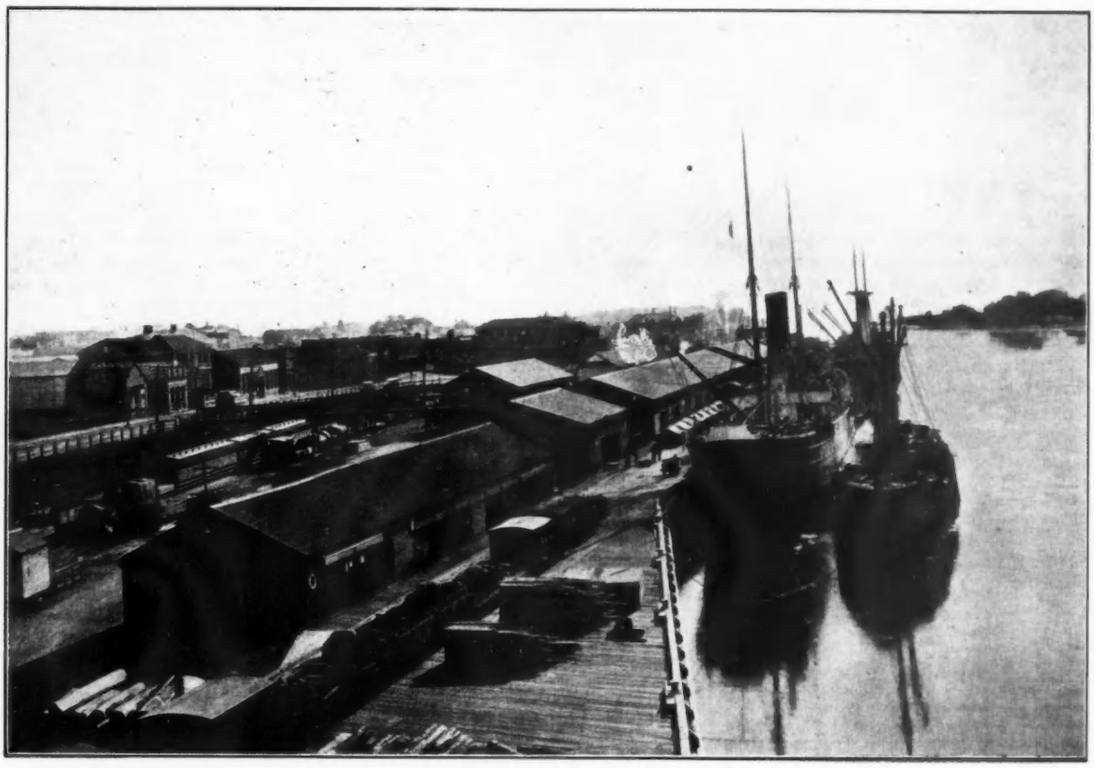


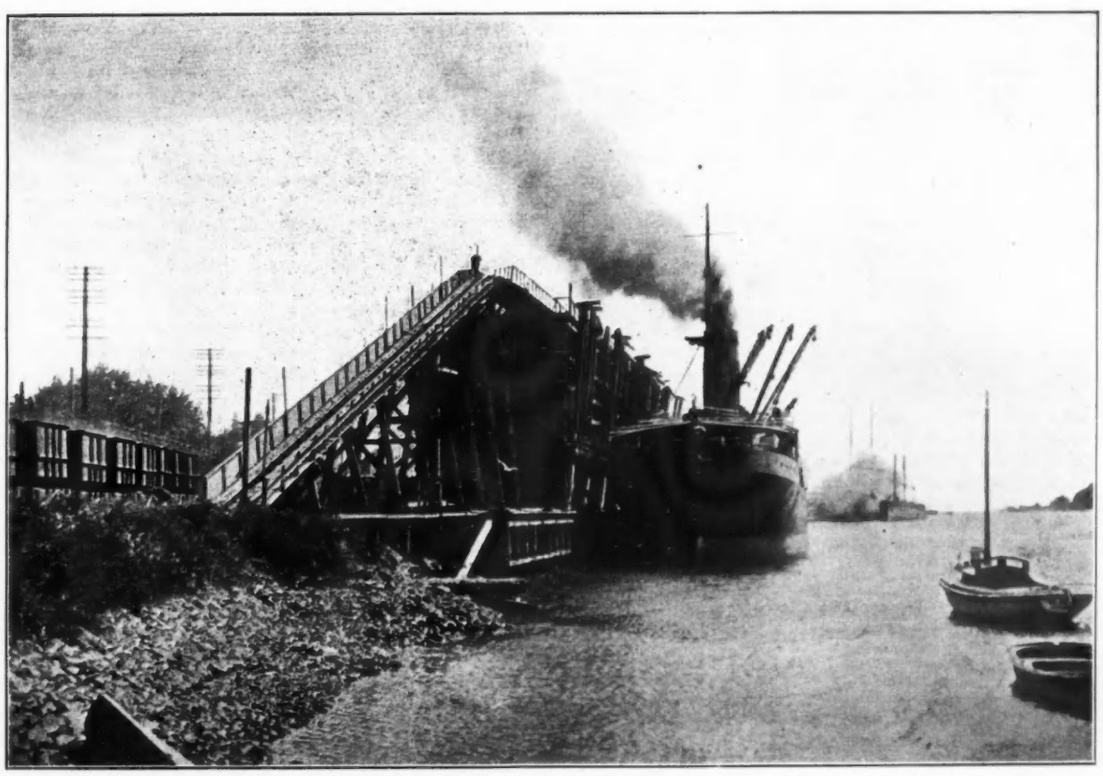




The Port of Devonport, Tasmania.



Devonport Wharves.



Operations at the Limestone Bins, Devonport Wharf.

The Port of Devonport, Tasmania—continued.

The first bridge at Devonport was erected in 1901 at Wood's Point, under one mile from the wharves.

Motor lorries now run regularly from farming districts many miles in all directions; these help to sustain the port's trade and will doubtless materially assist its increase.

Shipping.

The tonnage of vessels in earlier days seems very small to the modern mind, but they were staunch craft and, with staunch masters and crew, they served the day well.

In 1835 the schooner "Rebecca," of 15 tons, was trading between Launceston and Port Sorell, then the only port on the north-west of Tasmania; Circular Head and Emu Bay were open roadsteads.

It is interesting to note here that on May 12th, 1835, John Batman sailed from Launceston in this small craft, the "Rebecca," with three men, several civilised blacks, and sundry stock; she reached Hobson's Bay in 17 days, he choosing the site for a village, thus being the founder of Melbourne.

Edward Henty, also from Tasmania, had landed at Portland Bay in 1834. He and his brothers selected excellent land in the Casterton district, which remains in the family possession.

In 1854 a small steamer, freakishly called the "Titanic," ran "weekly" trips to coastal ports.

1855 saw a large steamer, the "Fenella," of 1,000 tons, enter the Mersey. The charterer had to give a bond of £2,000 "in case of damage," since insurance Companies would then only cover to "outside the entrance."

The s.s. "Devon," 129 tons register, in 1881 ran weekly coastal trips and was well patronised.

By 1899 weekly produce steamers, ranging from 600 to 1,300 tons, were running to Sydney. A bi-weekly mail and passenger boat ran to Melbourne, and a weekly cargo boat. A ship of 3,364 tons, the s.s. "Wyneric," visited the port in 1902, at a period when there was only 13-ft. 9-in. at the entrance L.W.S.T.

This year revealed an increase in the size and number of the produce boats to Sydney, some of them nearing 2,000 tons. From this period still larger vessels entered the inter-State trade and overseas steamers commenced to trade.

The following is the record of shipping entering and leaving the port for the years 1926-7 and 1927-8:—

	1926-7	1927-8
Vessels inwards	309	324
Vessels outwards	309	323
Net tons, inwards	313,067	306,963
Net tons, outwards	313,067	306,238
Gross tons, inwards	540,197	548,081
Gross tons, outwards	540,197	548,845

The largest vessels to navigate the port during the period were as follows:—

	Gross Tons.	Length.	Draft.
Port Bowen	8,267	480-ft.	21-ft. 0-in.
Clan MacNeil	6,111	410-ft.	21-ft. 6-in.
Clan Macfarlane	6,222	418-ft.	22-ft. 8-in.
Port Gisborne	8,001	477-ft.	21-ft. 0-in.
Port Wellington	7,868	470-ft.	21-ft. 0-in.

The following is the record of depths at the principal parts of the harbour from soundings taken and reduced to L.W.O.S.T.:—

Entrance, Leads in Line	20-ft.
Channel to Mussel Rock	19-ft.
Police Point	20-ft.
West Wharf, North	22-ft.
West Wharf, South	20-ft.
Overseas Berth	26-ft.
Limestone Bins	19-ft.

Figures given in a previous column bear repeating—value of exports for twelve months to June 30th, 1863, £12,746; value of exports for twelve months to June 30th, 1928, £591,242.

That there is likely to be a similar proportionate increase during the next 60 years is the firm belief of the present Wardens of the port.

There is plenty of scope for extension of shipping facilities at small expense compared with that involved in creating some of the present large ports of the world. Also, when the Devonport Estuary is found too small, the work can be continued in the Latrobe Estuary, which lends itself to easy dredging and ready utilisation of sand-clay silt for reclamation purposes. The value of reclaimed land would materially assist in paying the expenses of the various works involved in making this portion of the harbour suitable for shipping.

Bombay Port Trust.

At a meeting of the Trustees of the Port of Bombay held on November 12th, 1929, the following main items of business were disposed of:—

The Board considered and accepted the recommendation of the Finance and General Committee regarding acceptance of tenders for the supply of miscellaneous stores of the approximate aggregate of Rs.6½ lakhs for Port Trust requirements during the year 1930. In the majority of cases the accepted rates were lower than those prevailing under the current year's contracts. A tender of the approximate value of Rs.45,000 was also placed for the supply of uniform clothing to the Port Trust during the two years 1930-31, and a tender for supply of 400 tons soft coke during the year 1930.

The Board decided to reject the tenders received for coal for the year 1930-31 and to call for fresh tenders for (a) 40,000 tons steam coal for land and marine boilers and general purposes and (b) 10,000 tons steam coal for B.P.T. Railway locomotives during the year 1930-31.

An estimate of Rs.7,186 was sanctioned for the construction of a fireproof building at the Pir Pao Oil Pier to accommodate a cook-house for the use of tankers' crews while discharging dangerous petroleum and an installation for supplying electric lighting to tankers working at night.

Subject to the sanction of the Government, Mr. G. E. Bennett, M.Sc., M.Inst.C.E., M.I.Mech.E., Deputy Chief Engineer, was appointed to act as Chief Engineer vice Mr. J. McClure, M.Inst.C.E., who proceeded on leave preparatory to retirement on November 22nd, 1929.

At a meeting of the Trustees of the Port of Bombay held on November 26th, 1929, the following main items of business were disposed of:—

A contract for the supply of 20,000 gallons of petrol during 1930 was placed with the Indo-Burma Petroleum Co., Ltd.; the tender of Mr. F. D. Mavji for the supply of flax paulins for the docks during 1930 was accepted.

Estimates of expenditure for the following works were sanctioned against the relative budget provision:—

1. Rs.20,900 for renewal of sett-paving in sheds Nos. 7 and 8, Victoria Dock.
2. Rs.3,020 for renewal of woodwork of go-downs Nos. 165 and 166, Sassoon Dock.

In view of the fact that in modern ship construction flat-plate keels have almost entirely taken the place of bar keels, the Trustees approved a recommendation by their Chief Engineer that the babul wood blocks in the drydocks should be fitted with 4-in. soft pinewood caps in order to minimise the effect of unequal distribution of the vessel's weight on the blocks. The estimated cost of this proposal is Rs.12,000 per annum.

An amendment of the Docks and Bunders Scales of Rates was approved to provide for assessment of charges, when considered desirable, on the landing weights as ascertained by the Docks or Bunders Department. The object of the amendment is to ensure against loss or possible evasion of wharfage charges on perishable goods owing to loss of weight due to deterioration between the time of landing and the presentation of the Customs bill of entry or invoice.

At a meeting of the Trustees of the Port of Bombay, held on 3rd December, 1929, the following main items of business were disposed of:—

Estimates of expenditure for the following works were sanctioned against the relative Budget provision:—

Rs.12,900 for constructing additional quarters in Alexandra Dock for crews of dock tugs.

Rs.6,550 for constructing a masonry trench approximately 500-ft. in length for the 3-in. hydraulic pressure pipe at Hughes dry dock.

Rs.2,500 for purchase of a spare lift pump as a stand-by for the hydraulic pumping plant at Carnac Bunder.

Mr. R. Walker, master pilot, was appointed substantively as Harbour Master in the vacancy caused by the retirement of Mr. W. S. Hoseason.

A Vulcan Dock for Holland.

Dock No. 2 from the Vulcan Yard, Hamburg, which has been sold to the Rotterdamsche Droogdock Maatschaij, left Hamburg for Rotterdam on December 3rd. The sale price is said to be Rm.650,000. The transaction was carried out by the Deschimeg on behalf of Blohm and Voss, who acquired the dock upon the liquidation of the old Vulcan Yard. Dock No. 2 was built on the Tyne in 1898.

The Electric Operation and Control of Harbour Cranes.

THE cranes which form such a conspicuous feature in most shipyards comprise many different types, each of which has its own problems of operation and control, and it is impossible to do more here than to outline some of the main types and to indicate the recent improvements made in driving and control equipment.

Floating Crane at Southampton.

For handling steel plates and sections, castings, timber and similar material at the various outside and inside stock-bays, fixed gantries, provided with one or two overhead travellers, are usually employed. Each traveller is commonly equipped with long-travel, cross-traverse and hoisting motions, one or two (main and auxiliary) hoisting motors being fitted. In place of fixed gantries with overhead travellers, various types of travelling cranes are frequently met with in which the complete structure of the crane is arranged to travel along fixed rail tracks. These travelling cranes may be of the travelling jib type, single or double cantilever type, or of the giant or bridge type. They are fitted with motors for travelling, traversing, hoisting and possibly for slewing and luffing motions.

Many different types of cranes are found in connection with the various permanent and temporary building berths. One or more of the permanent berths may be provided with a fixed gantry structure, along which one, two or even three travellers of various capacity may operate. Each traveller may be arranged with long-travel, cross-traverse and hoisting motions.

Sometimes, in the place of the fixed gantry, a number of light hammer-head cranes or swivelling derricks may be permanently fitted at intervals on either side of each berth, and spaced so that they can operate over the whole area of the berths.

At the fitting out or wet basin there is usually installed a giant hammer-head or double-ended cantilever crane, having a lifting capacity of 200 to 250 tons. Such a crane may be provided with two, three, or even four hoisting motors, mounted on special cradles arranged to travel on rail paths along the two arms of the crane, the cradles being fitted with travelling motors. The heaviest hoisting motor works along the short arm of the crane for obtaining the highest lifts. The second hoisting motor operates along the long arm of the crane for all medium lifts, and is the one most frequently in use. The smaller hoisting motors are used when it is necessary to handle light loads with the big crane at comparatively high speeds. A turning or slewing motor is provided for slewing round the head of the crane. The operation of all the motors on the crane is controlled from a central fixed cabin situated in a convenient position, from which all the operations can be clearly viewed.

For use with crane motors of small h.p., handling fairly light loads, the simplest form of controller is the hand-operated reversible-drum type. For controlling d.c. motors, a control drum with separately mounted resistances is suitable. The drum is arranged for plain series control in both directions, and the resistance must be suitably rated. When this type of controller is used for the hoist motion a mechanical load brake must be fitted.

For the control of the hoisting motors, however, it is preferable, and often essential, to use dynamic lowering controllers, oy means of which perfect control of the load is obtained when lowering, even should the power supply fail.

In the past, the common method of braking has been by means of a friction device, which was arranged to dissipate the energy stored in the load in the form of heat. This form of braking is open to the objection that the friction necessary for the control of the load is invariably accompanied by mechanical abrasion, with the consequent need for frequent readjustment. Further, the co-efficient of friction is widely variable, thus rendering perfect control of the speed in lowering almost impossible. This difficulty is increased when dealing with heavy loads.

The drawbacks of the friction brake was quickly recognised by electrical engineers, and finally dynamic or electric braking was developed, in which the stored energy can be transformed into heat, and dissipated to the atmosphere without mechanical friction or abrasion. It should be remarked that in the ordinary dynamic braking system the descending load is compelled to drive the hoisting motor in the reverse direction and cause it to act as a generator, the power so generated being transformed into heat through the medium of a grid resistance, and thus dissipated to the atmosphere.

From a consideration of the problem of dynamic braking, it would appear that a machine having shunt characteristics would give the best results when considered from the lowering point of view. On the other hand, for hoisting, a series motor is without doubt the most desirable type of motor to employ from all points of view, so that it would appear that the motor to use for crane control would be a motor with shunt characteristics for lowering and series characteristics for hoisting. At first sight it would appear that a compound wound motor would be suitable for this service, but it has other objections which prevent its use, and the final solution of the problem has been to use a series motor for hoisting, and to arrange this series motor so that it has shunt characteristics during lowering.

In the controllers under consideration, the first hoisting step of the drum gives a slow speed step by means of a diverter resistance across the armature. This diverter resistance is cut out on the second notch, and then the control is by plain series regulation up to the maximum speed. A series wound solenoid brake is used to hold the load when current is taken from the line.

40-tons Electric Travelling Coaling Crane.

If there is a load on the hook and this load overhauls the motor, then current is directed around the local circuit made by ths armature and fixed step of resistance, the series solenoid and the series field, and the motor is thus driven as a generator, and so retards the load. Increased lowering speeds are given by first inserting resistance in the series field circuit, and finally by cutting out the starting resistance.

By properly proportioning the various resistance it is possible to get the speed of lowering so slow that the movement of

Electric Operation and Control of Harbour Cranes—continued.

the load is barely perceptible, in fact, on a modern crane, when the controller is on its first notch lowering, the only way one can tell that the load is being moved at all is by watching the motors, which are slowly turning. As far as the load is concerned, no movement can be detected. It is obvious that such a refinement of control possesses many advantages over any other method, and the crane driver can handle the heaviest loads with the utmost confidence.

Magnetic contactors, either single or double-pole, are frequently used in conjunction with drum controllers. The contacts are arranged to make and break the main circuit, and are electrically interlocked with the drums. When main contactors are used, shunt limit switches may be fitted to operate in conjunction with them for the purpose of limiting the various movements of the crane.

These main contactors may also be arranged with overload releases, but it is preferable to instal a special crane protective panel for use in conjunction with the various controllers on each crane, and on this panel may be incorporated all the necessary protective devices.

In the case of cross-traverse motions a crane protective panel may be provided, comprising two single-pole main contactors handling the main circuit to all three motors; a main overload release connected in one pole; an overload release for each motor connected in the other pole, and a pilot lamp with the usual accessories all mounted up together and enclosed in a suitable housing. Time lags may be fitted to the overload releases if desired. The main contactors may be remotely controlled by means of a separate start and stop push-button box, and usually a portable handlamp with plug and socket attachment is included.

The control drums themselves are provided with auxiliary contacts to enable them to be electrically interlocked with the crane protective panel, so that in the event of the main contactors opening on overload or from any other cause, it would be necessary to put all the drums into the off position before the main contactors could be reclosed by means of the start button. This arrangement gives complete protection to the crane; and, if separate interlocked contactors are not provided with each drum, shunt limit switches may be arranged to operate in conjunction with the main contactors on the protective panel. A special removable safety plug is sometimes fitted to the panel, and can quickly be withdrawn when it is desired to prevent any unauthorised interference with the crane.

As previously mentioned, drum type controllers are suitable for use with cranes handling comparatively light loads, but for cranes handling medium or heavy loads, contactor type control gear is very much to be preferred. For this heavy duty mill type reversible contactor panels are usually recommended, open or enclosed, controlled by means of separate single or multi-speed reversing master switches.

A typical panel for the control of a d.c. series wound reversible travelling or traversing motor comprises one single pole main contactor; two pairs of interlocked armature reversing contactors, and a number of single pole accelerating contactors arranged to cut out resistance step by step under the ultimate control of series relays. The switchgear is assembled on slate bases bolted to a wrought iron frame. One or more of the following may be included on the panel: One or two time lag overload releases, a double pole control switch and fuses, and a double pole isolating switch.

The equipment is designed for the plain series control of the motor in both directions, and a multipoint master switch allows the operator a certain amount of speed control in both directions. The motor is protected against damage due to rapid reversals by the automatic introduction of plugging or current-limiting resistance at each reversal. Moreover, it is impossible for the operator to accelerate the motor too rapidly, as the series relays automatically prevent this.

An interesting example of a modern electrically driven and controlled crane is the 150-ton revolving floating crane installed by the Southern Railway at Southampton Docks. This crane, which is capable of lifting loads up to 150 tons and revolving them through a complete circle of 106-ft. radius, is constructed primarily to work in conjunction with the floating dock at Southampton, as well as to carry out all the other varied and peculiar duties at the port for which a crane of this type has proved to be eminently suitable.

The details of this crane will be familiar to most readers, so it is proposed to confine these notes to the electrical equipment. The crane is equipped in all with eight motors as follows: Two of 80 b.h.p. for the main lift; one of 80 b.h.p. for the auxiliary lift; one of 60 b.h.p. for the trolley lift; one of 40 b.h.p. for the trolley traverse; one of 160 b.h.p. for derricking; and two of 30 b.h.p. for slewing. All these motors, with the exception of the 160 b.h.p. derricking motor, are series wound.

The most interesting feature of the control is in the two main lifting motors. These motors are entirely separate, and each drives its own hook. They may be used either individually or together. When they are being used together, they must hoist and lower at exactly the same speed, whatever the load. As, for instance, if a large piece of machinery is to be lowered into the hold of a ship, the load may be slung so that one hook has a load of 75 tons, while the other has only a very slight weight on it. It may then be necessary to tilt the load to an angle, and lower it into the hold without altering this angle. This is done on the control gear by means of an equalising drum, the object being to divert the series field of the motor to obtain the correct speed. When the motors are to be operated together, a transfer drum is thrown over, and this transfers all the controls to one master drum so that the operator can work both motors at the same time from the same drum.

The operation is as follows: The operator moves the master drum to the hoist position to lift the load; he might then find that one motor was slightly overhauling the other. He then moves the equalising drum so as to speed up the motor that is going slower. After that, he can start and stop the hoisting motion by means of the master drum without touching the equaliser, therefore only having one handle to manipulate. Now, when he comes to lower the load, he would find that the motor that was going the slower on hoisting, because of its heavier load, would be going the faster of the two. He therefore moves his equaliser drum over to the other side to speed up the lagging motor. After a few operations, the operator is able to place the equaliser direct into the correct position before operating the main master drum, so that for the main operation he has virtually only one lever to take care of.

This interesting crane was built by Cowans, Sheldon an Co., Ltd., of Carlisle, the control gear being designed by the Igranic Electric Co., of Bedford.

Belfast Harbour Affairs.

AT a meeting of the Belfast Harbour Board, Mr. R. E. Herdman, D.L., presiding, a letter was read from the Ulster Ministry of Labour expressing appreciation of the Board's co-operation with the Government in providing work for the relief of unemployment and asking if the Commissioners could see their way to undertake additional works.

The General Manager was authorised to ascertain whether any of the work proposed to be carried out in the vicinity of Dock Street and Pilot Street could be brought within the scope of the Government scheme for the relief of unemployment.

The Antrim Iron Co., Ltd., was granted permission to instal a 20-ton weighbridge on the site of the existing bridge at Albert Quay.

Messrs. Workman, Clark and Co., were given permission to use the Alexander graving dock for the purpose of lengthening the steamer " La Marea."

The Traffic and Navigation Committee's minutes contained a report with regard to accommodation for the cross-channel steamship Companies at Donegall Quay. Letters on the subject were read from the following:—The Ulster Imperial Line, the Clyde Shipping Co., Ltd., Messrs. W. E. Williams & Co., Belfast, Mersey, and Manchester Steamship Co., Ltd., The North of Ireland Cattle Traders and Stock Owners Association, and Messrs. Coombe, Barbour & Co., Belfast.

Deputations representing the above Companies and the London Midland and Scottish Railway Company, which control the Belfast and Heysham service, were received by the Board, and there was a full and frank interchange of views and opinions.

The Chairman made it clear that the Commissioners were anxious to adjust the accommodation available in such a manner as to cause the least possible disturbance and indicated that the views of the deputations would be carefully considered.

After the deputations retired it was decided to adjourn consideration of the subject to the next meeting.

The report of the Harbour Master showed that 295 vessels arrived at the port during the period November 17th to 30th as follow:—Coastwise and cross-channel 276, foreign 14, non-trading 5. The total tonnage of vessels which arrived from January 1st to November 30th was as follows:—Coastwise and cross-channel 2,346,914, an increase of 241,821 over the corresponding period in the previous year; foreign, 589,886, a decrease of 7,680; non-trading, 81,609, an increase of 26,797; grand total, 3,018,409, an increase of 260,938.

Every month sees an increase in the transatlantic traffic from Belfast. On December 8th the Cunard Company opened a new page in the history of the port, as on the morning of that day the " Carinthia " left Belfast Lough on the first trip direct to New York. The Company has planned to run a service fortnightly from Belfast to the United States throughout the whole of 1930. The ships for the service are all 20,000-tonners and include, in addition to the boat mentioned above, the " Franconia," " Scythia," " Samaria " and " Laconia."

Melbourne Harbour Trust.

Fifty-second Annual Report of the Commissioners for the Year ending 31st December, 1928.

THE trade of the port did not reach the dimension of the trade in 1927, which was the record for the port. The imports, 3,399,701 tons, show a decrease of 452,602 tons, or 12 per cent; exports, 1,331,049 tons, a decrease of 136,369 tons, or 9 per cent; and tonnage of shipping a decrease of 715,550 tons, or 6 per cent.

The decrease in imports is evenly proportioned between oversea and Australian trade; the decrease in exports is mainly in the oversea trade.

The eight years showing the greatest trade are:—

	Total Trade.
1913	4,295,496
1922	4,521,856
1923	4,636,390
1924	5,037,232
1925	4,894,589
1926	4,991,541
1927	5,319,721
1928	4,730,750

			Imports and Exports. Per cent.	Vessels' Tonnage. Per cent.
1920	showed an increase over	1919 of ...	5	10
1921	,, ,, ,,	1920 of ...	6	14
1922	,, ,, ,,	1921 of ...	14	28
1923	,, ,, ,,	1922 of ...	3	7
1924	,, ,, ,,	1923 of ...	9	0.2
1925	showed a decrease under	1924 of ...	3	2
1926	showed an increase over	1925 of ...	2	3
1927	,, ,, ,,	1926 of ...	6	4
1928	showed a decrease under	1927 of ...	12	6

As compared with the highest pre-war year, 1913, imports (3,399,701 tons) show an increase of 473,813 tons, equal to 12 per cent. Exports (1,331,049 tons) show a decrease of 38,559 tons, or 3 per cent. The gross tonnage of vessels visiting the port (11,713,340) shows an increase of 422,377 tons or 4 per cent.

The comparison of the trade of the port for the past 15 years is as follows:—

TOTAL OF IMPORTS AND EXPORTS.

	Imports. Tons.	Exports. Tons.	Tonnage. Gross.	Wharfage. Rates. £
1914 ...	2,976,593	1,316,028	11,183,277	276,669
1915 ...	2,982,239	969,245	9,668,173	244,953
1916 ...	2,633,825	1,358,223	8,960,311	250,028
1917 ...	2,138,272	1,231,411	6,920,346	197,893
1918 ...	2,543,720	1,174,674	5,271,180	225,808
1919 ...	1,893,351	1,687,941	6,945,404	191,437
1920 ...	2,552,384	1,204,466	7,655,233	255,238
1921 ...	2,713,635	1,266,044	8,696,087	329,997
1922 ...	3,026,917	1,494,939	11,089,415	384,455
1923 ...	3,382,323	1,254,067	11,815,555	475,376
1924 ...	3,569,627	1,467,605	11,833,416	501,131
1925 ...	3,413,511	1,481,078	11,558,322	483,919
1926 ...	3,577,828	1,413,713	11,902,514	536,392
1927 ...	3,852,303	1,467,418	12,428,890	584,216
1928 ...	3,399,701	1,331,049	11,713,340	511,040

The following table shows the division between Oversea and Inter-State trade:—

OVERSEA.

	Imports. Tons.	Exports. Tons.	Tonnage. Gross.	Wharfage Rates. £
1914 ...	1,313,288	575,985	6,752,827	199,902
1915 ...	1,298,902	239,553	5,182,068	162,089
1916 ...	982,044	655,542	4,776,524	159,238
1917 ...	754,050	638,082	2,997,893	128,970
1918 ...	874,158	507,033	2,170,770	122,411
1919 ...	697,856	1,202,063	4,449,512	131,136
1920 ...	1,127,779	668,998	4,990,731	175,986
1921 ...	1,059,445	802,164	4,570,294	213,394
1922 ...	1,173,620	928,283	7,035,326	267,739
1923 ...	1,516,379	555,810	7,952,258	365,215
1924 ...	1,662,467	760,316	7,470,062	375,278
1925 ...	1,503,474	857,290	7,654,563	364,028
1926 ...	1,783,484	775,546	7,888,366	409,441
1927 ...	1,969,510	784,093	8,316,051	448,675
1928 ...	1,746,412	674,904	8,016,472	389,235

INTER-STATE AND COASTAL.

	Imports. Tons.	Exports. Tons.	Tonnage. Gross.	Wharfage Rates. £
1914 ...	1,663,305	740,043	5,030,430	76,767
1915 ...	1,683,337	729,692	4,486,105	82,864
1916 ...	1,651,781	702,681	4,183,787	90,790
1917 ...	1,384,222	593,329	3,922,453	68,923
1918 ...	1,669,562	667,641	3,100,410	103,397
1919 ...	1,195,495	485,878	2,495,892	60,301
1920 ...	1,424,605	535,468	2,664,502	79,252
1921 ...	1,654,190	463,880	4,125,793	116,603
1922 ...	1,853,297	566,656	4,054,089	116,716
1923 ...	1,865,944	698,257	3,863,297	110,161
1924 ...	1,907,160	707,289	4,363,354	125,853
1925 ...	1,910,037	623,788	3,903,759	119,891
1926 ...	1,794,344	638,167	4,014,148	126,951
1927 ...	1,882,793	683,325	4,112,839	135,541
1928 ...	1,653,289	656,145	3,696,868	121,805

Receipts.

The ordinary receipts for the year were £702,604 19s. Other receipts and refunds were £53,163 9s. 4d., making the total receipts £755,768 8s. 4d. Deducting sales of stocks, plant, and credits for use of cranes and Williamstown Dock by Trust's plant, £7,497 1s. 2d., and refunds £27,023 18s. 8d., leaves the net receipts £721,247 13s. 6d., being a decrease of £101,769 14s. 5d. on that of 1927.

Wharfage rates (£511,040) received show a decrease of £73,176 on those actually received in 1927. The decrease from oversea trade is £59,440, from inter-State trade £13,555, while the State trade shows a decrease of £181.

WHARFAGE RATES.

1927. £		1928. £
448,675	On goods from oversea	389,235
133,529	On goods from other Australian States ...	119,974
2,012	On goods from Victorian ports	1,831
£584,216		£511,040

The average rate of wharfage on imports is 3s. per ton. Deducting one-fifth paid into the Consolidated Revenue of Victoria leaves 2s. 5d. per ton for Trust purposes.

There is no wharfage rate on exports, and the total revenue from wharfage rates per ton of trade is 2s. 2d., and for Trust's revenue 1s. 9d. per ton.

These average rates are identical with those of 1926 and 1927.

Tonnage rates (£115,691) show a decrease of £16,949. The rate per gross ton of the vessels visiting the port is 2.37d. per stay in port, compared with 2.6d. in 1927.

The average cargo in and out of oversea vessels in 1928 was 2,332 tons; in 1927 it was 2,479 tons.

1927 £		1928 £
111,977	Foreign going vessels paid	101,455
19,795	Inter-State vessels paid	13,501
868	Victorian coastal vessels paid	735
£132,640		£115,691

The revenue from vessels on account of the year 1928 is as follows:—

	£
Tonnage rates	115,691
First call berths	10,900
Rents of sheds	23,835
Appropriation fees	5,169
Use of sheds and conveniences	5,213
Use of coal staging	474
	£161,282

This amount returns per ton of trade:—

Gross. Pence.	One-fifth to Govt. Pence	Net to Trust. Pence.
8.18	1.64	6.54

The revenue from goods is as follows:—Wharfage rates, £511,040. This amount returns per ton of trade:—

Gross. Pence.	One-fifth to Govt. Pence.	Net to Trust. Pence.
25.92	5.18	20.74

Thus revenue from vessels and goods gives a return of 2s. 10.1d. per ton of trade, which after one-fifth is paid into the Consolidated Revenue leaves the Trust with 2s. 3.28d. per ton.

The proportions of ordinary revenue received are:—

From Goods	£511,040	= 73 per cent.
From vessels	£161,282	= 23 per cent.
From other sources	£30,283	= 4 per cent.
	£702,605	= 100 per cent.

Expenditure.

The expenditure for the year was £1,107,733 4s. 4d.; after deducting payment to Consolidated Revenue of £143,648 9s. 7d. and refunds of £3,351 16s. 6d., leaves a net expenditure of £960,732 18s. 3d., revenue expenditure being £471,121 9s. 4d. and capital expenditure £489,611 8s. 11d.

The amount paid into the Consolidated Revenue (£143,648 9s. 7d.) brings the total contribution from the Trust's funds to the Government to £2,905,116 15s. 5d.

REVENUE EXPENDITURE.	£	s.	d.
Flotation of Loans Expenses	69,441	6	1
ADMINISTRATION.			
Management	73,841	9	1
General and other expenses	18,939	8	0
MAINTENANCE.			
Dredging maintenance	41,407	10	2
Harbour maintenance and lighting	5,066	9	2
Wharves maintenance	58,212	13	3
Approaches maintenance	21,720	8	6
Interest	182,492	5	1
	£471,121	9	4

Melbourne Harbour Trust—continued.

CAPITAL EXPENDITURE.

	£	s.	d.
Land, property, etc.	10,828	10	4
Reclamations	34	16	8
Deepening waterways	219,938	15	1
Wharves construction	165,024	15	8
Approaches construction	78,227	19	0
Electric light installation	1,929	10	1
Other harbour improvements	10,309	17	7
Floating plant	2,092	1	5
Other plant	1,225	3	1
	£489,611	8	11

In the revenue account a proportion of the cost of administration, supervision, management, overhead charges of workshops, and interest on plant, amounting to £58,092 2s. 7d., is debited to the various works carried out by the Trust by day labour. With this adjustment the statement of the year's finances is as follows:—

	£	s.	d.
Revenue	731,286	12	3
Less Refunds and Payments to Consolidated Revenue	147,000	6	1
	£584,286	6	2

REVENUE EXPENDITURE.

	£	s.	d.
Flotation of Loan Expenses	3,500	0	0
Management and General Expenses and Interest	221,253	19	4
Maintenance—Dredging	49,257	9	1
Harbour	5,587	3	11
Wharves	59,774	19	2
Approaches	22,883	5	4
Depreciation, Renewals and Insurance Account	80,000	0	0
Sinking Fund Account	133,000	0	0
	575,256	16	10
Leaving a surplus on Revenue Account of	9,029	9	4
	£584,286	6	2

CAPITAL EXPENDITURE.

	£	s.	d.
Land, Property, etc.	10,869	3	1
Reclamations	37	1	3
Deepening waterways	261,634	5	9
Wharves and piers construction	161,234	18	2
Approaches construction	78,249	5	10
Electrical installation	2,046	10	2
Other harbour improvements	15,168	16	6
Floating plant	2,192	16	1
General plant and office furniture	1,267	14	8
	£532,700	11	6

Loans.

A loan of £500,000 and balance of a loan of £264,090 19s. 8d. both fell due on July 1st, 1928, and in order to redeem these loans and to obtain further money for capital works arrangements were made for a loan of £1,000,000, with a currency of 20 years from July 1st, 1928, the interest rate being £5 per cent. per annum. The loan was successfully floated in London, the price being £96 10s. per £100, equal to £5 5s. 10d. per cent. per annum for interest.

A loan of £100,000 for a period of six months at £5 12s. 6d. was also arranged with the Commonwealth Bank at par.

During the year sinking fund moneys were applied in redemption of loans as follows:—

	£	s.	d.
Loan I, due 1-1-32	2,807	13	0
Loan G, due 1-7-29	2,000	0	0
Loan N, due 1-7-46	60,000	0	0
	£64,807	13	0

The total amount of outstanding Trust's loans is now £3,726,800 4s. 3d. The amount in the sinking fund is £70,884 14s. 10d., leaving the net indebtedness at £3,655,915 9s. 5d.

Trade of the Port.

The gross tonnage of shipping in the port was 11,713,340, being a decrease of 715,550 tons. The number of vessels was 3,712, and thus the average tonnage of the vessels visiting the port is 3,156 tons, as compared with 3,093 tons in 1927.

Average gross tonnage of vessels visiting the port and the average cargo carried per gross ton are as follows:—

OVERSEA.

Year	No. of Vessels.	Gross Tonnage.	Average Gross Tonnage.	Cargo in and Out.	Average Cargo per Gross Ton
1919	1,127	4,449,512	3,948	1,899,919	.43
1920	1,173	4,990,731	4,255	1,796,777	.36
1921	1,266	4,570,294	3,610	1,861,609	.41
1922	1,351	7,035,326	5,208	2,101,903	.30
1923	1,081	7,952,258	7,356	2,072,189	.26
1924	1,021	7,470,062	7,316	2,422,783	.32
1925	1,049	7,654,563	7,297	2,360,764	.31
1926	1,048	7,888,366	7,534	2,559,030	.32
1927	1,111	8,316,051	7,485	2,753,603	.33
1928	1,038	8,016,472	7,723	2,421,316	.30

INTER-STATE AND STATE.

Year	No. of Vessels.	Gross Tonnage.	Average Gross Tonnage.	Cargo In and Out.	Average Cargo pe Gross Ton
1919	2,367	2,495,892	1,093	1,681,373	.67
1920	3,078	2,664,502	866	1,960,073	.74
1921	3,468	4,125,793	1,190	2,118,070	.51
1922	3,226	4,054,089	1,226	2,419,953	.60
1923	3,101	3,863,297	1,245	2,564,201	.66
1924	3,102	4,363,354	1,406	2,614,449	.60
1925	2,881	3,903,759	1,355	2,533,825	.65
1926	2,903	4,014,148	1,362	2,432,511	.61
1927	2,707	4,112,839	1,414	2,566,088	.62
1928	2,674	3,696,868	1,383	2,309,434	.62

The largest vessel to berth in the port was the s.s. "Mooltan," gross tonnage 20,847 tons; and that with the deepest draft on entering or leaving the s.s. "Suevic," 12,686 tons gross (23-ft. 3-in. forward and 32-ft. aft), in the bay, and the s.s. "Tairoa," 8,281 tons (27-ft. 3-in. forward and 27-ft. 5-in. aft), in the river.

The greatest number of vessels in port on any one day in the year was:—

	No.	Gross Tonnage.
Ocean-going	30	225,632
Inter-State	18	50,162
Intra-State	8	3,808
	56	279,602

These figures do not include vessels laid up or out of commission, but only those actually working.

Dredging Operations.

During the year the quantity of material raised was 3,656,114 barge yards, as compared with 3,713,127 raised in 1927, being a decrease of 57,013 yards on the quantity of material raised in 1927.

534,900 barge yards of the material were used in filling in the portion of the Old River lying between the Appleton Dock and the site reserved for the adjoining dock, and 187,650 yards were landed at the site for coal-handling plant on the Maribyrnong River.

The quantity of material raised in deepening waterways was 2,922,496 yards, the balance, 733,618, being for maintenance dredging.

The cost of dredging for the year is £261,345 5s. 3d., being equal to 17.155d. per barge yard, as compared with 15.05d. in 1927.

The whole of the dredging plant continued to work three shifts throughout the year.

Deepening Waterways.

Improvements of navigable depths of the port has been continued during the year on the following works:—

1. Deepening of branch channels outside Trust's former boundary to 37-ft. A depth of 34-ft. has already been provided over the full length and width (600-ft.) of the channel, and dredging is being continued to provide 37-ft.
2. Deepening area around Station Pier, Port Melbourne, to 37-ft.
3. Deepening the River Yarra from entrance to Johnston Street to 32-ft.
4. Widening River Yarra on south side.
5. Dredging the entrance to Appleton Dock.
6. Dredging the widened entrance to Victoria Dock.
7. Deepening Williamstown berthages.

The total expenditure in deepening waterways was as follows:

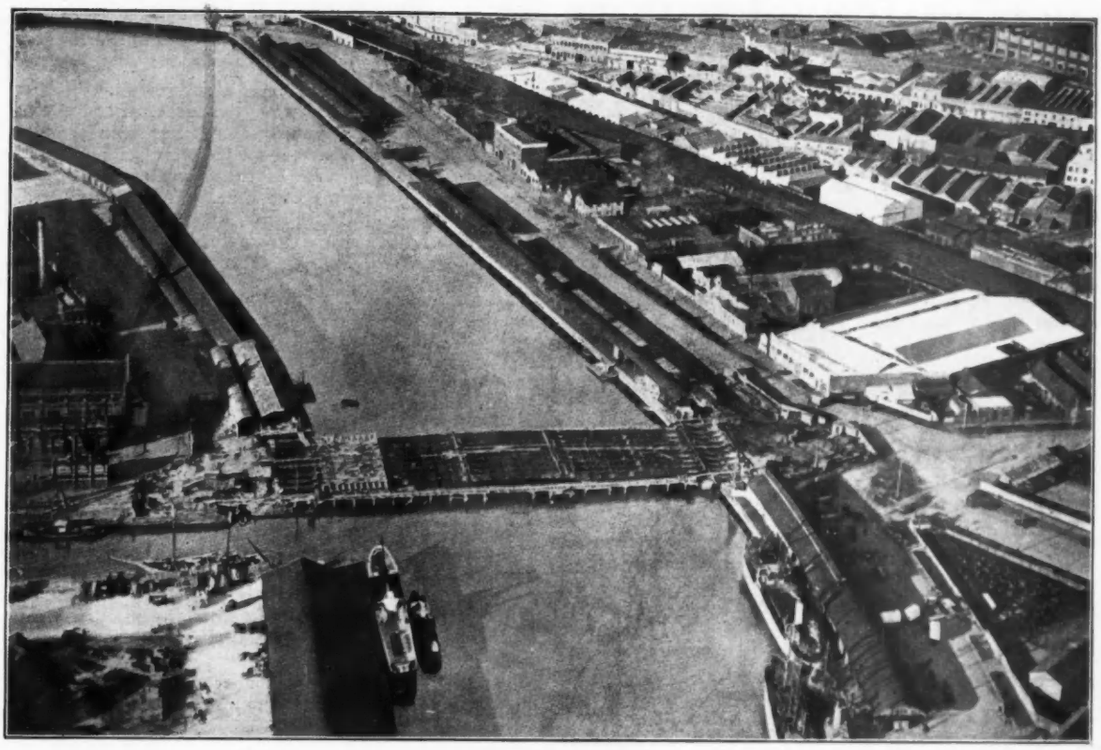
O.L.W.	Barge Yds. Raised	Cost. £	s.	d.
37-ft. Port Melbourne Channel from M.H.T. Boundary	597,902	44,996	8	2
37-ft. Station Pier, Port Melbourne	77,494	20,883	8	3
34-ft. Williamstown Piers	272,438	20,502	18	3
32-ft. River Entrance to Johnston Street	680,769	51,225	19	4
32-ft. Appleton Dock	649,075	48,847	10	9
32-ft. Victoria Dock Entrance and Basin	29,683	2,233	17	2
32-ft. Widening River, South Side	215,460	16,214	18	2
26-ft. 6-in. Maribyrnong River	199,765	15,033	15	0
Totals	2,922,496	£219,938	15	1

Maintenance Dredging.

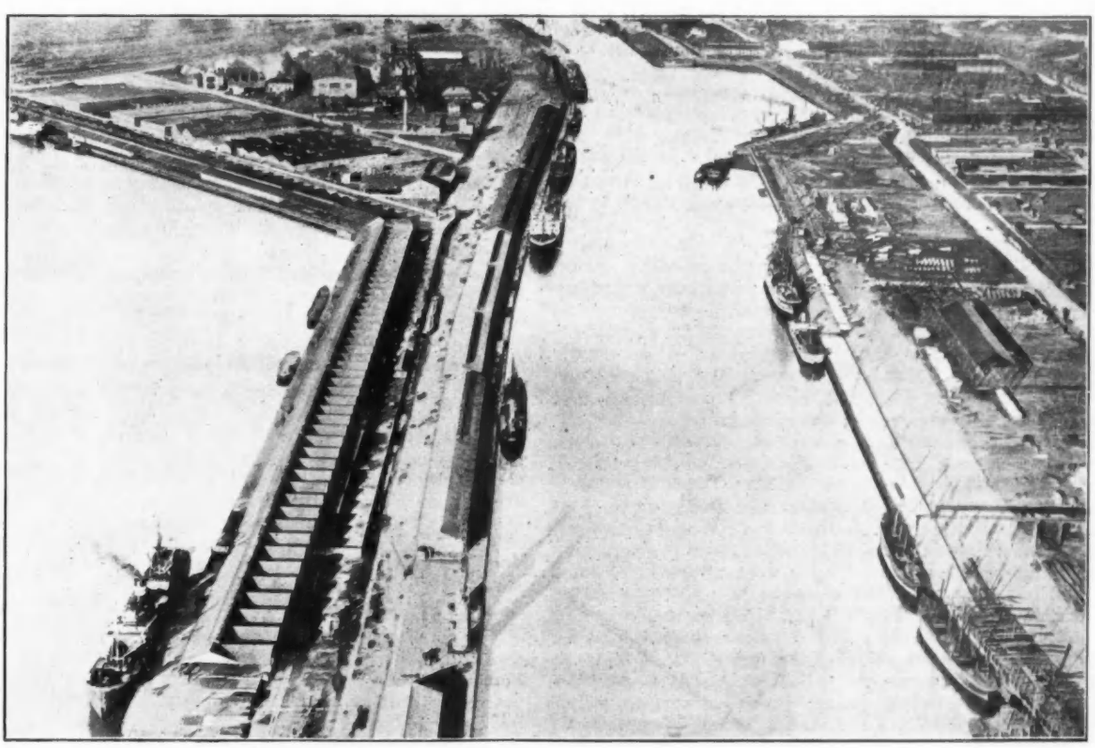
There were 733,618 barge yards raised in maintenance work during the year, being 484,392 yards less than were raised in 1927.

	Barge Yds. Raised.	Cost. £	s.	d.
Port Melbourne Channel from M.H.T. Boundary	834	47	1	6
Channel, from River Entrance to Port Melbourne Channel	1,668	94	2	11
River Entrance to Johnston Street	247,155	13,950	2	9
Victoria Dock Entrance and Basin	63,959	3,610	0	7
Maribyrnong River	132,607	7,484	14	5
Williamstown Berthages	197,130	11,126	11	8
Station Pier, Port Melbourne	21,043	1,187	14	7
Princes Pier, Port Melbourne	69,222	3,907	1	9
	733,618	£ 41,407	10	2

Melbourne Harbour Trust.



River Yarra, showing Spencer Street Bridge in course of construction.



River Yarra and Southern Corner of Victoria Dock.

Melbourne Harbour Trust—continued.

The costs given above are actual costs, including direct supervision of the Dredging Engineer and staff, but do not include any proportion of other management charges, interest, or depreciation of plant.

Port Improvements.

Widening of River Yarra and Swinging Basin.

The completed work is as follows:—

1. Swinging Basin enlarged from 550-ft. by 800-ft. to 700-ft. by 1,000-ft.
2. Construction of new timber wharf at Middle Swinging Basin 1,850-ft. long by 40-ft. wide.
3. Construction of 3,490-ft. of wharf 40-ft. wide, with concrete sheet piling, from old Lime Dock towards Middle Swinging Basin.

A contract has been let for the construction of 900-ft. of wharf to connect the new wharf with the wharf at the Swinging Basin, the contract price being £70,392, and the time for completion set down as November, 1930. This work is now in progress, and up till December 31st, 1928, £26,212 has been spent on same.

The total cost of these improvements is estimated at £430,000, of which £381,576 has been spent to December 31st, 1928.

The completed berthage space of 5,340-ft. in length has been extensively used, principally by the coal and timber trades.

Lower South Wharf.

The contractor for the extension of the reinforced concrete wharf on the south side of the River Yarra, opposite Appleton Dock entrance, for a length of 1,008-ft. has not yet completed his work.

A type of wharf entirely new to the port of Melbourne has been designed for this section. It is wholly of reinforced concrete, and consists of a beam and slab platform on reinforced concrete piles, carrying an earth fill confined by front and rear retaining walls. On top of this fill a deck of reinforced concrete slabs has been fixed.

The estimated cost of this work, not including dredging, is £66,470.

The expenditure to December 31st, 1928, not including dredging, is £61,566.

South Wharf.

Plans were at the close of the year being prepared for the erection of sheds on the south side of the river, three being 50-ft. in width, and the lengths being—No. 12 berth 350-ft., No. 13 berth 350-ft., No. 15 berth 312-ft.; also two sheds 100-ft. wide, one 1,000-ft. in length on the south side of the Middle Swinging Basin, and the other 575-ft. in length on the west side.

The erection of these sheds has become necessary owing to the construction of a fixed bridge at Spencer Street, with the consequent loss of berthage upstream from same. They will be appropriated for the use of vessels engaged in the inter-State trade; the shed to the west of the Middle Swinging Basin will be set apart principally for vessels engaged in the steel trade.

Station Pier, Port Melbourne.

A new pier has been built on the site of the old Railway Pier, Port Melbourne, and is called the Station Pier.

The principal dimensions are length 2,182-ft. and width 195-ft., as compared with the Princes Pier, which is 1,900-ft. long and 186-ft. wide. The increased width is being provided in order that electrically operated travelling portal jib cranes may be installed on both sides of the pier when required. (The installation of two of these cranes, each capable of lifting three tons, is now completed, at a cost of £11,639, including electric transformer and wiring.)

At the shore end, berths for bay excursion steamers have been provided, with convenient shelter sheds and refreshment rooms. The main pier will have four berths for oversea steamers, and the piling will be of sufficient length to enable the berths to be dredged to 40-ft. below low water.

Two double-decked shelter sheds are being constructed, each 300-ft. long by 127-ft. wide, provided with accommodation for the Customs officers and shipping Companies, at a contract price of £64,280.

Four movable gangways, giving direct access from ships' decks to the upper decks of the sheds, having been provided under contract at a cost of £1,597, and four more are now being constructed under contract at a cost of £1,217. The gangways are hinged, in order to suit vessels of varying heights above the water-line, and also to rise out of the way of travelling jib cranes. The cost of the completed scheme, including dredging to 37-ft., will, it is estimated, be £602,000.

The structure is similar to the Princes Pier, with a raised concourse in the middle. On either side there will be four sets of railway lines.

The expenditure to December 31st, 1928, on this work is £566,559, including £71,857 for dredging and £494,702 for construction of new pier, demolition of the old, and erection of sheds.

Improved Entrance to Victoria Dock and Berthages in River Yarra between Victoria Dock and the Entrance to the Appleton Dock.

This work, together with the necessary dredging in the widened entrance to Victoria Dock, has been completed. The new wharves thus made available give an added 1,710-ft. of berthage, at which three of the largest vessels that enter the river may berth at the one time. These berths are designed to carry three sets of railway lines, travelling cranes, as well as motor trucks with a gross loaded weight of 9.7 tons.

The cost of this work was £280,436, including dredging.

New Wharf and Sheds at Pitt Street, Victoria Dock.

The new shed on the reconstructed wharf in Pitt Street has been completed. It has a width of 80-ft. and a length of 1,280-ft., and is fitted throughout with steel roller shutters so that the whole may be locked up. This is divided into three sheds by internal partitions, and has reinforced floors capable of carrying a load of 6-cwt. per square foot.

The cost of the shed was £48,090, including shutters, which cost £9,087.

Widening Wharves, Victoria Dock.

To enable the berths on the south and east side of the Victoria Dock to be dredged to a depth of 32-ft., it is necessary to widen the wharf in front of the sheds from 24-ft. to 34-ft. A beginning has been made at No. 1 Berth, Victoria Dock, and the estimated cost of this section is £7,060.

In conjunction with the widening, the reconstruction of the superstructure in front of the sheds is being carried out, and provision is made for a concrete deck to replace the timber decking.

Coal Berths.

The widening of the River Yarra necessitated the demolition of the structure used by the coal trade. A section of the Lower South Wharf 1,600-ft. in length was appropriated and provided with sufficient coal staging for this trade.

Areas for coal yards at the rear of these berths were made available for the storage of coal.

Coal Berths at Maribyrnong.

The matter of providing suitable wharves and plant for the efficient handling of all coal imports at the Maribyrnong River has been further advanced.

The layout of berths has been approved, and plans and specifications for their construction with concrete sheet piling, and alternatively a concrete and timber structure. Tenders for the supply and erection of the necessary mechanical handling plant are under consideration.

Appleton Dock.

The work in connection with the new Appleton Dock, which the Trust is anxious to expedite, is being held up pending the completion of the new Footscray Road.

Breakwater Pier, Williamstown—Berthage at Williamstown.

Plans and specifications are in hand for the reconstruction and lengthening of this pier, which when completed will provide an additional berthage space of 234-ft., making a total of 939-ft. Provision is made in the plans for the use of longer piles, to permit of dredging to a depth of 40-ft. when required. The question of widening the pier and the erection of sheds thereon is receiving the Commissioners' consideration.

The estimated cost of the reconstruction and lengthening is £94,800, apart from the cost of shed construction.

Nelson Pier, Williamstown.

The contract to lengthen this pier by 413-ft. is well in hand, and will, when completed, give a total berthage on each side of 963-ft., thus providing deep-water accommodation for four vessels instead of two as previously. The new work makes provision for piles of sufficient length to allow of dredging ultimately to 40-ft.

The contract price £36,266, of which £33,672 has been expended to December 31st, 1928.

The estimated cost of the whole work is £90,000, which includes £52,300 for dredging the approaches to the berths to a depth of 34-ft.

The Port of Melbourne—continued.

Ferry Pier at Ferguson Street, Williamstown.

A jetty 130-ft. long by 30-ft. wide has been constructed at the end of Ferguson Street, Williamstown, at a cost of £2,023. The cost of the approach to the jetty amounted to £2,920, in addition to which amount the Trust supplied material valued at £383.

The jetty was built for use in connection with the Port Melbourne-Williamstown ferry service, and is now being so used.

Gem Pier, Williamstown.

This pier has been reconstructed at a cost of £7,112. The old structure was in existence when the Trust was first constituted in 1876.

Fencing-in Wharves.

The scheme for enclosing the wharves within a compound has been steadily pursued, with the result that all the Victoria Dock and North Wharf berthage used by oversea vessels has been enclosed.

Three gates, with accommodation for the Customs watching staff, have been erected at three points in the fences giving access to these wharves, which are used for oversea vessels. No goods are permitted to pass through these gates except on the production of a pass-out docket. The wharves being thus compounded together, with the activity of the wharf police control, has reduced the evil of pillage of cargo to a minimum.

Plans are in hand for the immediate compounding of Australian Wharf, South Wharf, and the piers at Port Melbourne.

New Road to Footscray.

The work of constructing this road by the Melbourne City Council is proceeding at the joint cost of the Victorian Railways, the Trust, the Melbourne City Council, and the Footscray City Council. The Trust's proportion of the cost is estimated at £135,850.

Pitt Street.

Work is at present in progress on the reconstruction of Pitt Street. The street will be 78-ft. wide, consisting of 39-ft. of 2-in. bituminous concrete on a reinforced concrete foundation; the remainder of the surface will be paved with 12-in. bluestone pitchers.

The contract price is £34,043, and the expenditure to December 31st, 1928, amounts to £10,537 9s. 4d.

New Road at 1 mile 74½ chains Mark, South Side of River.

A new road is being constructed on the south side of the river at the rear of the new reinforced concrete wharf, between the 1-mile 74½-chains and the 2-miles 9½-chains marks.

The roadway will be 977-ft. long by 99-ft. wide, and is to be constructed with a base course of broken blue metal with a bituminous concrete surface.

The contract price for this work is £10,758.

Road from Swallow Street to Station Pier.

This road, with an average width of 60-ft., consisting of bituminous macadam with pitchered channels, has been completed.

The contract price for this work was £2,481.

Summary of Accommodation in the Port.

The present effective berthing space in the port is 50,453-ft., equal to 9.6 miles in length, with an area of over 68 acres of wharf space.

There is now under construction a further 4,460-ft. of berthage, making a total of 54,913-ft., or about 10.4 miles of berthing space.

On these miles of wharf there are 99 sheds—59 open and 40 closed—with a length of 20,427-ft. and an area of 27 acres 2 roods 35 perches.

The depth of water available is 37-ft. at Port Melbourne, 34-ft. at Williamstown, 29-ft. in lower river and Victoria Dock.

The greatest number of vessels (including only vessels actually working and not those laid up) in port at one time occurred in the year 1925 and was:—

	No.	Gross Tonnage.
Ocean-going	30	177,923
Inter-State	28	66,477
Intra-State	7	3,926
	65	248,326

Summary of Improvements in hand.

Important port improvements in hand at the end of the year, with amount expended thereon and the balance to complete, were as follows:—

	Expended to 31/12/1928.	Estimated Balance to Complete.
	£	£
Deepening waterways	261,634	1,210,055
Ferguson Street Jetty Shelter Shed	173	——
Lower South Wharf	9,958	4,287
Widening No. 1 Wharf, Victoria Dock	5,097	6,083
Sheds, Pitt Street Wharf	10,268	——
Princes Pier, Offices and Cargo Cages	923	——
South Wharf (Section "D") ...	26,212	45,623
Station Pier, Port Melbourne ...	64,681	53,179
New River Berths, between Victoria and Appleton Docks ...	3,254	50,000
Nelson Pier Extension	33,672	7,210
Gem Pier Reconstruction ...	6,429	1,831
Normanby Road Reconstruction ...	2,313	800
Ferguson Street Jetty Approach ...	2,918	——
Lorimer Street Reconstruction ...	967	30,000
Appleton Dock	1,907*	1,310,315
Customs Compound	4,112	65,000
Sheet Piling, Port Melbourne ...	1,228	——
New Coal Handling Site, Maribyrnong	3,837	563,800
Demolition, South Wharf	1,427	——
Plant	3,461	——
Reclamation	742	——
Electric Installations	2,047	——
Land, Port Melbourne	9,927	——
Dockyard, Plant, and Buildings ...	933	——
	£458,120	£3,348,183

* Exclusive of dredging, estimated to cost £775,000.

Prevention of Pillage and Police Patrol of Wharves.

The arrangements made in 1921 whereby the police wharf patrol of twelve plain-clothes constables was increased to 26 has continued to give excellent results.

Payments in 1920 by shipping Companies on account of pillage claims averaged 24.6d per ton of cargo; in 1921 it dropped to 5.1d. Since then there has still been a steady decrease, until in 1928 it reached the low figure of .66d. Claims paid on account of cargo thefts were more than 100 per cent. less in 1928 than in 1927.

Of the 34 convictions in 1928, 21 were sentenced to imprisonment; the other 13 were fined sums ranging from £1 to £10.

Freedom of Government Goods from Payment of Wharfage Rates.

The exemption of goods for the use of the Governments, Commonwealth and State, from payment of wharfage rates continues in spite of many requests for the abolition of this exemption. The loss to Trust's revenue during the last 16 years amounts to £308,164.

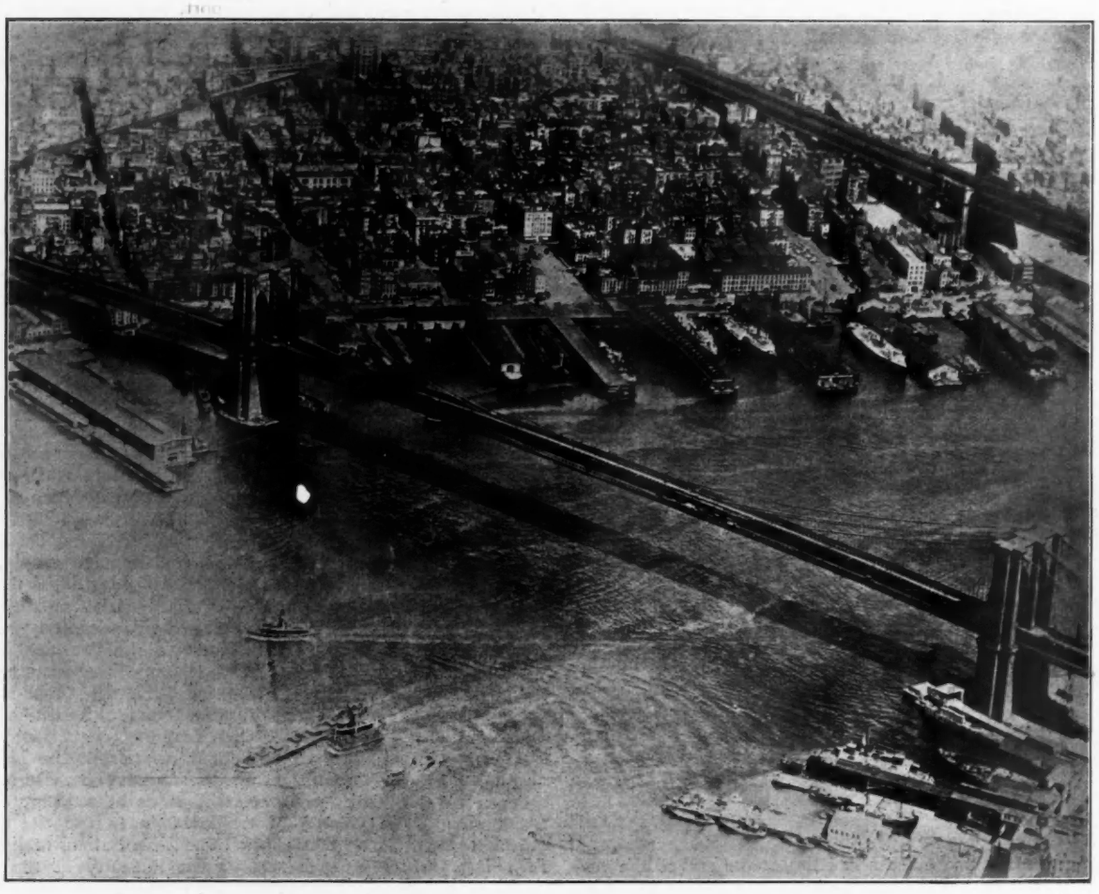
Hansa Canal Project.

At the annual meeting, held recently, of the Hamburg Branch of the Hansa Canal Association, which is a private Association comprising some leading Hamburg firms interested in the project, it was stated that the preliminary work is expected to be completed at the end of March, 1930. A Government Commission has been engaged since January, 1927, on this work, which consists of surveys, the preparation of plans and estimates, and the examination of the various technical and economical details connected with the scheme. Funds for this preliminary work have been voted from time to time by the Reichstag, which recently voted a final instalment of Rm.350,000 for the completion of the work of the Commission. The scheme has for its object the linking-up of the Rhenish Westphalian industrial area with the seaports on the Weser and Elbe and by this means of providing cheaper transport facilities than are at present available. It is anticipated that the construction of the canal will enable the Ruhr coal industry to compete successfully with British coal imported at the North Sea seaports. With the completion of the work of the Commission the Association hopes that the German Ministry of Transport will be in a position to decide definitely upon its policy. Already more than a year ago the Prussian Landtag passed a resolution in favour of the immediate commencement of the work on the ground that the canal will enable German coal to compete on more favourable terms with British coal in the area served by the North Sea seaports.

The projected route of the canal runs from the Mittelland Canal, north of Osnabruck, to the Weser near Bremen and thence to the Elbe, which it will enter at a point close to Hamburg. The volume of traffic likely to use the canal is estimated at 12,000,000 tons. The Association realises that financing the scheme presents great difficulty at the present time, but considers that in view of its importance the Government must make every effort to overcome the difficulty.

The Port of New York.

Aerial View of New York Harbour from point above the Upper Bay.



East River (New York) Waterfront in neighbourhood of Brooklyn Bridge.

The Port of New York.

By John F. Galvin, Chairman, the Port of New York Authority.

FOR more than a century the Port of New York has been recognised as the gateway of the United States. At the same time, it has become the principal cross-roads of the world trade routes of the Western Hemisphere. Nature gave New York Harbour wonderful physical advantages. The ingenuity and resourcefulness of modern man have provided the conveniences necessary to a full realisation of its port possibilities.

The Port of New York to-day offers exporters and importers superior facilities for rapid transportation, safe handling, and storage. Banking and credit facilities are without parallel. As for its natural attractions, they are numerous and well known. Steamships find a harbour exceeding all others in dockage space, accessible through deep and wide channels, and amply served by pilotage, towing, bunkering, supply, and repair companies.

The popularity of its services is seen in the enormous commerce that it enjoys. Yet, there are importers, exporters, manufacturers, and shipping lines who do not fully appreciate the advantages of utilising the Port of New York. The same greatness which attracts commerce here is the reason why the Port of New York is under constant attack from ambitious outports elsewhere along the Atlantic and Gulf Coasts.

First and foremost in the supremacy of the port is the unlimited range and frequency of steamship services.

These ships represent the finest, the largest, and the best of their respective lines, and New York is their port at this end of the run, but on the other end of the trip they have various home ports, berthing at London and Liverpool, and Southampton, at Havre and Antwerp, at Rotterdam, Hamburg, and Bremen, at Genoa and Naples. New York is called upon and meets the necessities of all these lines.

From New York their sails the freighter that will touch at many ports, picking up its cargo at New York, touching at various ports to discharge and then load, and then returning to New York with its full cargo in perhaps six months.

A ship arrives or departs from New York Harbour every ten minutes during daylight hours. The total tonnage of ocean-going vessels touching at this port in one year aggregates 38,000,000 net registered tons. The vessels operating in foreign trade carry 25,000,000 tons of cargo in and out of New York every year. Coastwise ships plying between New York and other ports of the United States carry 42,000,000 cargo tons a year.

The tonnage of vessels entering and clearing the Port of New York in the calendar year of 1928 showed increases over 1927 of 4,800,000 and 2,500,000 tons respectively.

The port is served by twelve trunk lines, operating 32,000 miles of main tracks and connecting with all of the 250,000 miles of trackage in the United States. The freight lines of nine of these railroads terminate on the western side of the Hudson River, the others having stations on the eastern side.

However, all of the trunk lines reach all sections of the port by floating barges and lighters propelled by tugs over the harbour water. All carload freight enjoying a rail haul of 140 miles or more is entitled to the lighterage delivery at the New York rate without extra charge.

Trans-Atlantic Liner bound for its (New York) Hudson River Pier.

This utilisation of the harbour as "water belt line" permits the utmost flexibility in routing freight through New York, giving every steamship pier or waterfront industry the benefit of the competitive services of all transportation lines.

As a part of their delivery equipment the railroads serving New York maintain a fleet of 1,700 harbour craft. The equipment includes self-propelled lighters for speedy express delivery, covered and refrigerated barges for the protection of packaged and perishable freight, derrick lighters for handling automobiles and machinery, powerful steam and Diesel-propelled tugs and steel car-floats capable of carrying as many as 21 large freight cars at one time.

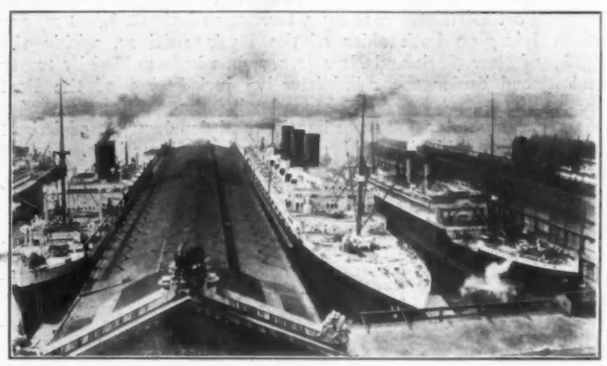


Photo showing some of the Chelsea Piers, Hudson River, New York.

Besides reaching all parts of the harbour by means of floating equipment, the railroads reach numerous piers by direct rail spurs and belt line connections, bringing the wheels to the keels. It is possible to secure a maximum speed of steamship cargo handling by loading and unloading both directly to cars and motor trucks on the piers and overside to lighters on the water at the same time.

The fast, dependable service of the carriers to and from New York, combined with the frequency of steamship sailings and arrivals, permits the maximum possible dispatch in handling exports and imports through this port, with consequent saving to the merchant and manufacturer in interest charges. Where orders must be filled on time the combined rail and ocean service through the Port of New York offers the best guarantee to both buyer and seller.

To promote flexibility of routing, the railroads permit export freight to be billed to the Port of New York without specific designation of pier or steamship.

The enormous popularity of transportation through the Port of New York may be appreciated by the records of cars and tonnage handled. Fifteen thousand loaded freight cars move in, out, or through the port every day. In a single year these cars carry the enormous total of 85,000,000 tons of freight.

Several coastwise lines are operated by or in conjunction with connecting rail services from the outport to its hinterland, thus giving the advantage of combined rail and water distribution at differentially lower rates.

The splendid waterways surrounding New York include the Hudson River, which is navigable for large-size river boats as far north as Albany and Troy, and Long Island Sound adjacent to the south shore of New England. Beyond Troy the State of New York has provided a barge canal connecting with the Great Lakes, the enormous inland sea, giving access to the north central portion of the United States and south central Canada.

On the barge canal are operated regular services to ports on the Great Lakes. The barge schedules from Detroit, the great automobile manufacturing centre, are six days for a distance of 650 miles. The rates via the barge canal are differentially dower than the standard all-rail rates, permitting further economies in distribution for commodities not requiring such rapid movement.

The eastern seaboard territory, of which New York is the centre, is also served by numerous commercial motor truck lines operating over splendid highways. There are more than 300 commercial truck operators maintaining services out of New York.

In the most recent field of transportation, the air service, New York has facilities which are being rapidly expanded. Within the confines of the port are five commercial airports, with a sixth under construction. Regular passenger, mail, and express services are operated to Boston, Chicago, Washington, and Montreal.

The Port of New York—continued.

In addition to being the gateway to the Continent, the port district furnishes in itself an immense local market for high-grade merchandise. The Metropolitan District has a population of approximately 9,000,000 people. In addition to the resident population there is a daily influx of 200,000 visitors who shop in this market.

Not only is the Port of New York a great consuming centre, but it also manufactures an amazing variety of industrial products, some of which are exported. The annual industrial output exceeds $10,000,000,000 in value. Great quantities of the total volume of commodities which enter the district, whether raw materials or manufactured goods, find within its limits their ultimate destination. Merchandise imports for the New York Customs District for the year 1927 amounted to 48.9 per cent. of the total value of imports for the entire United States; and merchandise exports amounted to 35.5 per cent. of the total value of exports of the country.

The Port District, covering a territory of about 1,500 square miles, lying on both sides of the Hudson River, within the States of New York and New Jersey, has been unified by treaty and placed under the administrative jurisdiction of the Port Authority. That body is charged with the development of a comprehensive plan for co-ordination and development of freight facilities and vehicular bridges connecting all sections.

In time past the States of New York and New Jersey themselves have been frequently at arms over the development and arrangement of the port. The creation of the Port of New York Authority was undertaken largely to change this condition.

The Port Authority, it will be noted, in reality is an agency of New York and New Jersey to which certain responsibilities and duties have been delegated. The agreement under which it has been created has the approval of Congress, for Congressional concurrence is indispensable under the compact clause of the Federal Constitution permitting States to enter into such agreements.

Two bridges, each the greatest of its type in the world, are in course of construction over the waters separating the States. Two other spans linking the two commonwealths are in the first year of operation, with results that already assure their financial success.

Three of these four bridges join Staten Island with New Jersey and end the former's physical isolation from the mainland. The fourth will be a monumental suspension structure over the Hudson River between Fort Lee, New Jersey, and West 179th Street, New York City. It will have a swing from tower to tower of 3,500-ft., or exactly twice that of the Delaware River Bridge between Philadelphia and Camden, which is the present holder of the world's record.

The Kill van Kull Bridge, joining Port Richmond, Staten Island, and Bayonne, New Jersey, will be of arch design and will exceed the one now under construction at Sydney, Australia, by 25-ft.

The two completed Arthur Kill bridges, as they are sometimes called, have welded Staten Island and New Jersey. Both span the narrow stream known as the Arthur Kill, the Goethals Bridge joining Elizabeth, New Jersey, with Howland Hook, Staten Island, and the Outerbridge Crossing extending between Perth Amboy, New Jersey, and Tottenville, Staten Island.

On the principle that population follows transportation, Port Authority spokesmen frequently have declared that its plans for these bridges and its other projects will bring about a more equitable distribution of population in the New York-New Jersey region.

Aden Port Trust.

The following figures show the returns for the month of October, 1929:—

SHIPPING USING THE PORT.

	No.	Tonnage.
Merchant vessels over 200 tons	124	516,897
Merchant vessels under 200 tons	13	1,955
Government vessels	6	23,586
Dhows	108	2,930
PERIM.		
Merchant vessels over 200 tons	41	153,739

The total value of imports, excluding Government stores, was Rs.60,46,000, as compared with Rs.67,90,000 for October, 1928, and of exports Rs.47,30,000, as compared with Rs.60,89,000.

The total value of both imports and exports together was Rs.107,76,000, as compared with Rs.128,79,000 for the corresponding month last year.

Imports during the month were above those for October, 1928, in the case of gums and resins, seeds, grey and printed or dyed piece goods, and twist and yarn; and below in the case of coffee, grain, pulse and flour, hardware, raw hides, raw skins, sugar, white piece goods, unmanufactured and manufactured tobacco and private treasure.

Exports were above those for October, 1928, in the case of hardware, grey piece goods, twist and yarn, and manufactured tobacco; and below in the case of coffee, grain, pulse and flour, gums and resins, raw hides, seeds, raw skins, sugar, white and printed or dyed piece goods, unmanufactured tobacco, and private treasure.

TRADE OF THE PORT.

Article.	Unit.	Imports.		Exports.	
		Quantity.	Value Rs.	Quantity.	Value Rs.
Coal	Tons.	6,542	1,30,800	0	0
Coffee	Cwts.	5,143	2,31,011	4,875	3,29,973
Grain, Pulse and Flour	,,	46,696	4,07,234	31,724	2,73,120
Gums and Resins	,,	4,400	1,13,686	2,390	70,798
Hardware	—	0	21,184	0	31,529
Hides, Raw	No.	4,720	13,470	6,756	19,400
Oil, Fuel	Tons	44,542	13,36,260	0	0
,, Kerosene	Gls.	31,296	21,284	7,092	5,331
,, Petrol	,,	14,080	17,940	4,584	6,168
Salt	Tons	0	0	18,900	1,96,400
Seeds	Cwts.	3,968	53,605	524	9,700
Skins, Raw	No.	391,860	3,45,321	574,593	6,55,232
Sugar	Cwts.	19,408	1,79,230	15,797	1,54,650
Textiles—					
Piece Goods, Grey	Yds.	2,777,957	6,67,995	3,174,570	7,42,914
,, ,, White	,,	666,396	1,91,375	284,380	92,560
,, ,, Printed or Dyed ...	,,	798,048	2,39 900	665,152	2,39,921
Twist and Yarn	Lbs.	593,060	3,88,270	467,023	3,26,710
Tobacco, Unmanufactured ...	,,	383,628	1,13,475	500,304	1,51,424
,, Manufactured	,,	36,164	44,438	70,392	51,202
Other Articles	No. of Pkges.	58,329	10,63,594	21,598	7,17,646
Treasure, Private	—	0	4,65,846	0	6,52,420
Total ...	—	—	60,45,918	—	47,30,098

The number of merchant vessels over 200 tons that used the port in October, 1929, was 124, as compared with 117 in the corresponding month last year, and the total tonnage was 517,000, as compared with 485,000.

Excluding coal, salt, fuel oil, and military and naval stores and transhipment cargo, the total tonnage of imports in the month was 8,500 and of exports 5,700, as compared with 11,200 and 7,900 respectively for the corresponding month last year.

The Port of New York.

In foreground, section of New Jersey frontage on Hudson River, opposite New York, and showing grain elevator, railroad trackage, and covered and uncovered lighterage piers.

Section of New Jersey Waterfront, showing rail and pier facilities on Hudson River opposite New York.

Harbour Engineering Notes.

Power Transformers for the Irish Free State.

THE recent transportation of the three three-phase transformers, each of 12,000 kva capacity, from the Rugby works of the British Thomson-Houston Co., Ltd., to the Fleet Street transformer station, Dublin, is of interest as showing how the question of railway and water transport influences design. These three units will form the only link between the distribution system fed from the Shannon hydro-electric scheme at Ardnacrusha and the existing distribution scheme of Dublin fed from the steam generating station at Pigeon House Fort.

As these transformers will be required to supply power in either direction, it was necessary to design them for a large variation in the ratio of transformation—25.7 per cent. in terminal pressure on the high-voltage side. This variation is controlled automatically under normal conditions and manually under special conditions through the latest type of tap changing-on-load equipment, in which there are two large three-phase tapping switches adjacent to the windings inside the main transformer tank and two three-phase sets of contactors in a tank on the side of the main transformer. In order to keep the overall dimensions of the transformer as small as possible, detachable radiators in conjunction with the B.T.H. system of high-pressure air-jet cooling are used.

Fig. 1.

So that the 40-ton crocodile trucks belonging to the railway companies could be used, the top of each transformer tank was designed to the exact shape of the railway loading gauge and the under-carriage was made detachable. The high-voltage and low-voltage terminals were removed, temporary cover plates being fitted to the tanks, and two eyebolts 3-in. high were withdrawn, so that when loaded on the railway trucks the tops of the transformers exactly fitted the loading gauge. In addition, the radiators, air-jet cooling equipment, blowers, contactor tank, and control equipment were sent separately. The main transformer tanks, however, were shipped full of oil and with all the internal equipment in position.

The three transformers, with the equipment to be mounted on them, and oil to complete the first fill, but without any other plant which is being supplied for the Fleet Street station, formed a train of 19 wagons which left for Sandon Dock, Liverpool. From here the transformers were taken on a floating crane to Nelson Dock, where they were loaded on to the British and Irish Steam Packet Co.'s s.s. " Lady Meath." Fig. 1 shows the transformers being loaded on to the vessel from a floating crane.

From Northwall Quay, Dublin, the only means of delivering the transformers to the Fleet Street station was by road, and the only vehicle in Ireland capable of carrying the load was requisitioned for the duty.

Preventing Overheating of Induction Motors.

An important point in the operation of industrial induction motors is to obtain from them the maximum service without the danger of overheating, and the best method of securing this so far is by means of a triple-pole oil-immersed thermal circuit breaker, which is applicable also to other forms of service on three-phase systems. The latest form of this type of circuit breaker is the JA1, and an induction motor so protected is allowed to carry heavy overloads for short periods and yet it is disconnected from the supply circuit when these overloads are

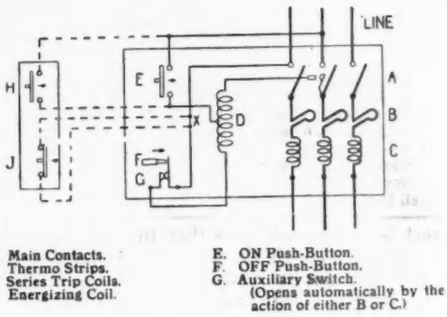


Fig. 1.

of sufficiently long duration to cause undue heating of the motor windings. Further, the motor will also be disconnected in the event of an open circuit of one of the phases overloading the motor, and instantaneously disconnected if a short-circuit occurs in the motor windings or connections. Complete under-voltage protection is also afforded, as the breaker will trip if the supply voltage falls below 60 per cent. of normal. The motor cannot be restarted until the breaker has been closed, although the supply may be restored.

The breaker may be used for the direct starting of squirrel cage motors in which the starting current, when directly connected to the line, does not exceed 100 amps. The momentary starting current will be safely carried by these breakers without tripping. When, however, the starting period is prolonged, as in a heavily loaded machine taking considerable time to reach full speed, the breaker must be specially designed.

The breaker is controlled by on and off spring-loaded push-buttons carried on a vertical pillar and arranged to project through the cover for external operation. By pressing the " on " push-button (see Fig. 1), part of the energising coil D is connected across two phases of the main circuit, and sufficient pull is exerted on the armature to close the contacts with a rapid motion. As the closing movement is completed, an auxiliary switch fitted to the middle moving contact automatically closes and connects the whole of the energising coil in circuit; thus the current required to maintain the breaker in the closed position is reduced to the minimum.

The " on " push-button should be released immediately the breaker closes, otherwise there is risk of damaging the coils through overheating. Hand-tripping of the breaker is effected by the operation of the " off " push-button, which opens the auxiliary switch G, thus disconnecting the energising coil from the main circuit. The armature is immediately released, and the breaker contacts separate with a quick-break action.

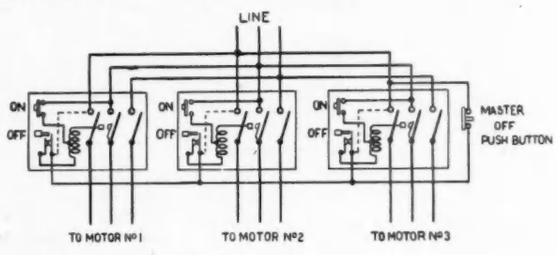


Fig. 2.

The connection diagram in Fig. 1 shows that the breaker can be either direct hand controlled by push buttons E and F, or direct and remote hand controlled by means of additional push buttons H and J. For this dual control, the push buttons are mounted in a metal box that can be placed in any desired position. It is important to remove the jumper connection between the left-hand line contact and the auxiliary switch G, so that there is no through connection at X.

It is also possible to arrange a group of breakers so that each breaker can be closed or opened locally, but with simultaneous opening of the whole group by means of a master off push button, as shown in Fig. 2. Such an arrangement is applicable to machines on which two or more motors are used. The control points for simultaneous opening can be multiplied by simply inserting other master off push buttons in series.

Harbour Engineering Notes—continued.

A New Stainless Steel.

A new form of stainless steel, known as "Maxilvry," has been patented by Edgar Allen and Co., Ltd. This is an alloy of iron with large percentages of nickel and chromium and a small copper content. It is manufactured in the Heroult electric furnace, and great care is exercised in controlling its composition and casting temperature, so as to obtain a product of uniform composition and properties. It is non-magnetic in all conditions, and is much more resistant to corrosion than Imperial stainless iron. The following are typical tests obtained from Maxilvry stainless steel in the fully softened, forged conditions:—

	Bar, 1¼-in. dia.
Yield Point, tons per sq. in.	15·6
Maximum Stress, tons per sq. in.	40
Elongation, per cent.	68.5
Reduction of Area, per cent.	71·6
Izod Impact, ft. lb.	105
Brinell Hardness...	149

The steel is easily welded, either by the electrical or oxy-acetylene process, though it cannot be welded in the smithy. The steel is resistant to nitric and acetic acid, and is very slightly attacked by hydrochloric and sulphuric acids.

Novel Internal Combustion Locomotive.

An interesting type of industrial locomotive suitable for dock and harbour work has recently been designed by Kerr Stuart and Co. This locomotive is fitted with a Diesel engine burning crude oil at less than 4d. per gallon, and it is the first of its type to employ the new Robertson infinitely variable automatic gear. The gear changes itself up or down in accordance with the load on the locomotive, so that the work of the driver is reduced to that of handling the engine throttle and the brake.

A New Welding Rod.

A new welding rod of manganese-chrome-iron has lately been introduced for a variety of welding purposes. This is a self-hardening alloy, designed primarily for building up badly worn parts preparatory to surfacing them with Stellite, which, of course, is also used in the form of a welding rod. Since the cost of the new alloy is much less than that of Stellite, the resulting composite surface is less costly than if built up of Stellite. This new alloy goes under the name of Hascrome, and it may be used for building up large sections of steel or cast iron, and forms an excellent base for Stelliting, because it is sufficiently hard to resist deformation under impact and because of the ease with which Stellite flows on to it. Although in some cases Hascrome alone may be used for hard-surfacing parts subject to abrasive wear, it does not possess red hardness to the same degree as Stellite, and it will wear away more rapidly.

The oxy-acetylene process is considered best for the application of Hascrome, since the hardness of the deposited metal can be controlled by the amount of excess acetylene used in the welding flame, as well as by the rate of cooling. The greater the excess of acetylene in the flame and the slower the cooling rate, the harder will be the deposit. When quenched, the metal becomes softer and tougher. Hascrome is applied to steel without puddling the steel, and the best results are obtained when the deposit is made just so the steel surface is at a sweating heat. The following figures give results obtained under average conditions:—

	Brinell hardness.
Small excess of acetylene—	
Slowly cooled	250—300
Quenched	240—290
Heavy excess of acetylene—	
Slowly cooled	450—500
Quenched	350—450

The Hascrome has a tensile strength of 40,000 and a compressive strength of 177,000-lb. per square inch. It can be forged and ground but not machined.

Hascrome welding rod can also be applied by means of the metallic arc process, by the use of reverse polarity, making the rod the positive electrode. Care must be taken to prevent cracking after quenching when this method is employed. Arc-welded deposits have a Brinell hardness of 240-400, depending on the rate of cooling. Better deposits are obtained when a coated rod is used.

Brass and Bronze in Ship Decoration.

To her record-breaking achievements in speed the magnificent liner "Bremen" adds another point of interest by the uses made of copper, brass, and bronze for ship decoration. These metals are combined with various woods, opalescent glass, and onyx for the decoration of the various public rooms. These rust-proof metals are used to a large extent in the modernistic note which is conspicuous in the decorative treatment of the ship's passenger quarters.

The grand staircase extending to all principal decks is guarded by balustrades with banister work of brass used in combination with glass. Metal parts of the lighting fixtures are of brass, including very extensive cornice mouldings which are part of the indirect lighting system applied in saloons and lounges. Brass-bound tables, table lamps, framed pillars and panels, windows, and symbolic bas-reliefs of brass and bronze on the walls and doors are some of the other uses to which these metals are put.

Brass or bronze is used for the window-frames of the shops which line a whole "street" on one of the upper decks, and also for panel frames and heavy protective grilles on the main doors in various parts of the ship.

Nordic Harbour Shipping and Transport Exhibition at Kiel.

A report received by the Department of Overseas Trade from His Majesty's Consul-General at Hamburg states that preliminary notices have just been circulated of an exhibition to be held at Kiel between August 30th and September 21st, 1930, styled the "Nordische Hafen—Schiffahrts—und Verkehrs—Austellung" and a company, the Ausstellungs—Gesellschaft m.b.h., Kiel, has been formed to run it. The exhibition is being held under the auspices of the Kiel municipal authorities in the Nordseehalle, a large building with a floor space of approximately 8,000 square metres erected some three years ago by the municipality of Kiel for exhibition purposes, and invitations for support are being extended to port management authorities and all branches of industry interested in port construction, shipbuilding and allied industries. The appended list shows the various sections and indicates the scope of the exhibition.

The closing date for application to exhibit is July 31st, 1930. Stands may be rented with frontage as required and a depth of 2, 3, 4 and 7 metres. Covered stands will be charged at Rm. 40 per square metre and stands in the open at Rm. 20. The charge for special positions and wall spaces is by special arrangement. Full particulars may be obtained from the exhibition offices, 69, Holtenauerstrasse, Kiel. There are also offices in Berlin, Hamburg and Danzig.

SECTIONS.

Plans, illustrations, models of seaports and inland shipping harbours, moles, locks, bridges, and other port constructions.

Diagrams and statistics of harbour, sea-going and inland waterway traffic.

Information in regard to port management, pilot services, port dues and charges.

Equipment of harbours: Sanitary services, disinfection of vessels, quarantine, etc.

Transhipment and transport equipment: Cranes, loading bridges, warehouses and sheds, tug and delivery services, port forwarding services and bunkering.

Safety, life-saving and salvage services.

Shipbuilding: Models of sea-going and inland shipping vessels, passenger and freight steamers, special vessels, construction of fishing, motor, sailing and rowing boats.

Ships' equipment: Engines, motors, nautical instruments, wireless telegraphy.

Ships' fittings: Samples of furnishings and articles used for the economic running of ships and for general comfort on board.

Ships' provisioning: Modern equipment of galleys, larders, accommodation, refrigerating plant. Special department: provisions.

Shipping: Historical development of the world's shipping routes, ship models, geographical survey, marine and transport insurance, coastal and inland shipping, meteorological services, etc.

Emigration and tourist traffic: Advice, accommodation, transport.

Economic radius of harbours: Illustrations, maps and diagrams showing the development and economic importance of the hinterland, the waterway and railway communications with the sea-ports, transport facilities and tariffs for imports, exports and transit.

Air transport and its importance in modern traffic.

Exports and imports: Information in regard to export and import possibilities of various countries; collective export exhibitions of individual countries.

Fisheries: Models of fishing vessels, fishing gear, fish utilisation and fish preserving.

Propaganda: Organisation of tourist traffic, propaganda for seaports, cities and health resorts.

Literature and Art: Ports, shipbuilding and traffic of the world in the Press, literature and art.

Special features to be arranged in connection with the exhibition will include congresses and conferences of experts on various subjects, inspections of the more important of Kiel industrial concerns, conducted trips through Kiel harbour and the Kiel Canal and films shown in the exhibition hall theatre.

Irish Harbour Matters.

Refloating the "Celtic"—Work for Haulbowline.

THE Cork Harbour Commissioners at a meeting held on 28th November reversed a decision, come to at a previous meeting, to prohibit the White Star liner Celtic from entering the harbour in the event of its being refloated. The first decision met with general disapproval, and public meetings had been called to protest against it.

The Commissioners' action seems to have been inspired by fear that the Celtic might sink in the Channel of the River Lee and seriously interrupt the trade and commerce of the Cork port.

Mr. Richard Wallace, Chairman of the Board, has pointed out that any possibility of risks borne by the Board had been fully covered by the owners of the Celtic, the Oceanic Steam Navigation Co., Ltd. He had seen representatives of the Oceanic Company in London and also the Directors of Lloyds, and they had undertaken to indemnify the Board against all possible loss or damage to their trade. "All these risks," he said, "are fully covered, and against them you have fully three years employment at Haulbowline, and a large increase in your revenue through the traffic incurred. The position that we would not allow the Celtic into our harbour is untenable, and there is now no financial responsibility on this Board for any damage or risk entailed. We are fully covered against all that."

When Messrs. Petersen and Albeck, salvage contractors, first commenced work on the "Celtic" last May it was announced not only that an effort would be made to refloat the hulk but that if the attempt proved successful the "Celtic" would be brought into the harbour and broken up there.

For this purpose the salvage Company have leased from the Free State Government for a period of three years the former British Admiralty dockyard at Haulbowline, and the work of dismantling the "Celtic" will, it is estimated, result in the payment of £25,000 in wages to the workers of the lower harbour.

Until a few weeks ago the Cork Harbour Board was concerned regarding the removal of the s.s. "Allison," a sunken wreck which, although outside the channel, blocked the entrance to Haulbowline. The refloating of this vessel was entrusted to a local firm.

The six airtight chambers necessary for the refloating of the "Celtic" have been provided by Messrs. Cox and Dancks, who successfully refloated the scuttled ships of the German Fleet at Scapa Flow.

Cork Harbour Development—Proposed Two Million Scheme.

For the development of Cork Harbour and its establishment as a national free port a scheme has been outlined by Mr. Joseph N. Mullan, Executive Vice-President of the Ireland Corporation of America, a group of American financiers, who, it is stated, are anxious to advance a long-term loan at a low rate of interest to carry out the project.

It is estimated that the scheme would cost £1,839,000. It provides for the removal of the harbour rock, frequently described as the natural breakwater, protecting Queenstown and district, together with the dredging of the Turbot Bank.

A large sum is also allocated for the deepening of the River Lee channel to a site at Little Island, midway between Cork and Queenstown, where vessels up to 35-ft. draught can be accommodated. Here it is suggested that over 300 acres of the land can be reclaimed to provide additional area for the erection of warehouses, cold-storage plants, and industrial sites which would be necessary as the scheme developed.

At Little Island a huge concrete waterfront bulkhead would be constructed, with warehouses, grain elevators, Customs facilities, administrative offices, and passenger stations, together with hangars for seaplanes and aeroplanes. Alongside this would be dry-dock berthing for vessels under repair, together with complete up-to-date equipment for loading and unloading cargoes, with the provision of adequate railroad facilities.

Mr. Mullan, on the basis of half-a-million tons of goods being handled annually, estimates the revenue at £612,000 per annum.

The Engineer's Report.

Mr. J. Price, Engineer to the Cork Harbour Commissioners, in the course of his report on these proposals, describes Mr. Mullan's free port scheme at Little Island as not only ambitious and expensive but unnecessary. Transhipment is provided for at all the Cork quays on favourable terms for all non-dutiable goods, and additional accommodation for transhipping, landing, or storing can, he says, be provided at Haulbowline, Passage Docks, or elsewhere at moderate outlay. Mr. Price goes on to say that the suggested graving dock at Little Island is also unnecessary, for all the work required could be done at Rushbrooke Dock, while Haulbowline dry docks are also available. He also disapproves of the removal of the harbour rock, and with reference to the suggestion that a channel should be cut, two miles long, 650-ft. wide, and 33-ft. deep, through Curlane Bank into Monkstown Bay, he says it would be useless, for at present vessels of 27-ft draught can cross the bar and go up to Passage at dead low water, and even as far as Cork itself on a 13-ft. tide.

Considering the rocky formation at Spike Island, Moreno Point, Little, and Paddy's Black Point, Mr. Price believes that the scheme would cost an additional 3¼ millions to carry out.

Dock Trouble in Waterford Settled.

The coal boat "Brooklands," with coals from Newport, Mon., was the cause of some trouble with dockers at Waterford last month. When the vessel reached Waterford on November 18th the skipper ordered the crew to fill the coal from the ship into the baskets and buckets, which would then be carried to waiting carts by carriers who are known as "hobblers." The Dockers' Union refused to allow the crew to have anything to do with discharging the vessel, a rule which, it is stated, has been in operation for a century. The skipper declared that he could deal with his ship as he liked, and in consequence of the deadlock the boat was held up for two days. After that time the skipper declared his willingness to observe the custom of the port.

Galway as a Port of Call.

A large number of liners will make Galway a port of call next year. The call of the White Star liner "Megantic" on her spring and early summer sailings to Montreal will be supplemented by the "Cedric," which will call at Galway and Queenstown in March, April, and May en route to New York. These special sailings will be supplementary to the weekly service to the States and the fortnightly service to Canada from Ireland.

Lighting Waterford Stock Yards.

In consequence of steps taken by the Waterford Harbour Commissioners following complaints from the cattle trade, the shipping Companies concerned have agreed to instal electric light for the purpose of cattle inspection in live stock yards on Adelphi Quay. The water supply is also about to be improved.

Limerick Link Railway.

A Joint Committee of Limerick Corporation and Limerick Harbour Board has decided by a majority to recommend the Borough Council to grant wayleave for the proposed construction of a link railway between the docks of the Great Southern Railway at Carey's Road. Property-owners in Mallow Street intend to raise an objection.

French Shipping Order for Belfast.

The great French shipping concern the Compagnie Générale Transatlantique has placed an order with Messrs. Harland and Wolff at Belfast for six new cargo boats of 6,200 tons each, with triple-expansion engines equal to 4,600 horse-power and ensuring a minimum speed of 14 knots. The Company state that while the Belfast tender was not the lowest it was more satisfactory than any other in regard to prompt delivery and guaranteed workmanship and material.

Reconstruction of Hamburg Quayside Sheds.

In continuation of its programme for the reconstruction of the older quayside sheds on the right bank of the Elbe, the Hamburg Senate proposes the expenditure of Rm.292,700 on the reconstruction of Shed No. 11 on the Kaiserquai on the Sandthor Hafen. Last year Shed No. 12 was rebuilt to meet modern requirements.

Dredgers and Plant constructed at Renfrew, Scotland.

The following vessels have been constructed by Messrs. William Simons & Co., Ltd., of Renfrew, during the year 1929:

Type.	Tonnage.	I.H.P.	Owners.
Dredger	954	850	Colonial.
Non-propelling bucket dredger	52	80	British.
Barge-loading bucket dredger	431	700	Foreign.

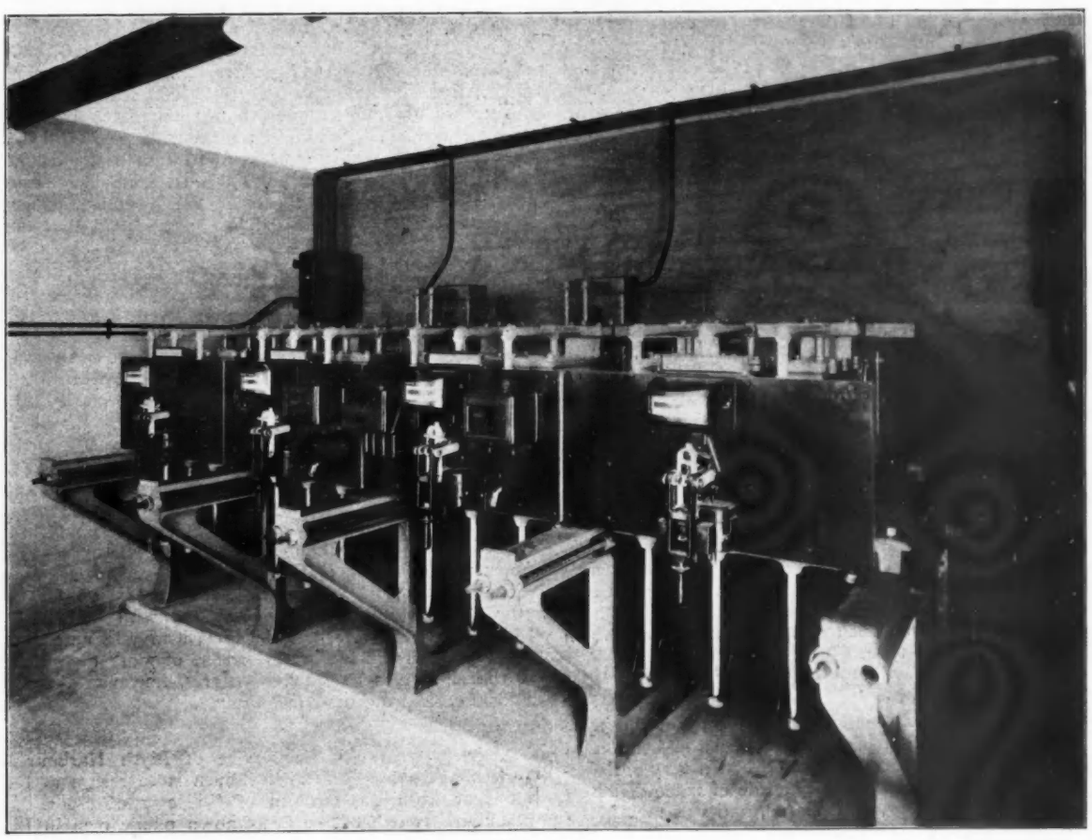
Besides the above, a large quantity of dredging machinery was also supplied during the year.

Dockyard Electrification.

Compound-filled Switchgear.

IN some cases it is desirable that h.t. and e.h.t. switchgear equipments be of the utmost compactness, and this is one of the requirements which has led to the development of the metal-clad compound-filled equipments. In addition to the features of safety and reliability, the equipments are so designed that they can be operated by semi-skilled labour, and besides simplicity of erection, extensions and alterations can be made with the minimum interruption to the supply.

An example of this type of switchgear in use for circuits of 11,000 volts is shown in the photograph, which gives a view of an 11,000 volt duplicate bus bar equipment for operation by remote hand control.



Each equipment comprises two parts—a fixed unit, consisting of main frame, bus bars, circuit chamber, cable box and potential transformer, if required, and, second, a movable unit, consisting of an oil circuit breaker arranged to plug into the fixed unit.

It will be noted that the circuit chamber is mounted above the busbar chamber, an arrangement which enables a potential transformer to be mounted above the gear in a readily accessible position, and permits renewal of a potential fuse while the equipment is in commission and without danger to the operator.

The current transformers for metering and tripping are accommodated in the chambers carrying the top plugs, and it will be understood that this arrangement enables a current transformer to be changed without breaking cable joints, and avoiding the necessity of decompounding any part of the equipment, a feature of considerable importance when the maintenance of service is vital.

Shutters automatically cover the live contacts when the breaker is withdrawn, and these are so arranged that the bus bar and circuit shutters can be separately or collectively padlocked.

In the case of duplicate bus bars the breaker is connected to either set by means of removable self-aligning plugs which are inserted into the upper or lower plugging insulators, or, where desired, oil-immersed selectors are provided. These are situated on the fixed portion of the gear and are operated by handles which are interlocked with the circuit breaker so that it is impossible to break circuit on the selectors.

The breaker is moved into or out of engagement with the bus and circuit contacts by means of screws, on which are mounted travelling blocks to which the breaker is coupled by removable dowel pins. Two screws per unit are provided, these screws being coupled by means of a chain and sprocket wheels at the back of the equipment. Either screw is available for operation by a detachable handle. When in the fully plugged-in position the wheels of the breaker engage under heavy restraining lugs, which together with the screw mechanism hold the breaker firmly locked in position. It is therefore impossible for the breaker to jump or move when it operates under heavy fault conditions.

The circuit breaker operating handle is accommodated by a steel panel, on which may be mounted the instrument equipment, the size of the panel being varied according to requirements.

The oil circuit breaker has a deep top plate, which accommodates the operating mechanism and provides an ample air buffer, thus restricting the gas pressure when the breaker operates under fault conditions, while pebble filled separating chambers and gas vents cool the gases and form an intricate baffle to prevent oil-throwing.

The breaker contacts are of the finger pattern, reinforced by steel backing springs, substantial renewable arcing tips being fitted. Both main and arcing contacts are designed so that they maintain contact when subjected to the electro-magnetic stresses set up when the breaker is heavily loaded, and they will not tend to lift when the breaker is operating on a fault.

As the breaker mechanism is entirely closed, with the exception of the separating chambers and vents, there are no slots or holes through which oil can be thrown. This enclosure of the mechanism also has the effect of avoiding any tendency for the breaker to reclose on a fault due to internal gas pressure. A new form of buffer ensures minimum stresses in stopping the crossbar at the end of its opening stroke, and is equally effective whether the oil tank be on or off.

The plugging contacts are self-aligning and can be readily replaced if damaged, without decompounding a unit. Interlocks prevent the breaker being inserted or withdrawn while it is in the closed position, thereby preventing any danger of breaking circuit on the plugging contacts.

The instrument and control wiring is enclosed in conduit on the movable part of the equipment, and inter-connections between units are carried in an easily-accessible channel conduit,

Dockyard Electrification—continued.

which accommodates also the auxiliary plug and socket contacts for the connections between fixed and moving portions.

Busbar sectioning and paralleling equipments are standardised and an earthing device suitable for earthing the circuit or bus through the oil circuit breaker is fitted when required. This device ensures that if a live circuit be inadvertently put to earth, injury to the operator will be avoided.

These equipments are made in various sizes for use on circuits up to 33,000 volts and with rupturing capacities up to about 1,000,000 kva. Both single and duplicate busbars are provided for in the designs, and in the latter case selection may be by means of movable plugs, or, alternatively, by oil-immersed selectors, so arranged that a circuit may be transferred, when required, from one bus to the other without shutting down.

North-East Coast Notes.

FROM Tweed to Tyne and thence to the Tees there are nothing but rumours and talks of extensions. Much of this has been provoked or encouraged by the supposed readiness of the Government to come forward to assist local bodies with their schemes of improvement by bearing substantial portions of the cost. It is not often that Berwick-on-Tweed is brought forward for discussion of its commerce, but Captain Todd, the local Member of Parliament, raised the question of the development of Berwick Harbour. The suggestion of such an improvement is not new, and there have been optimists who have declared that with a relatively small expenditure it could be made a port superior to Blyth. So far matters have not got beyond the discussion stage.

The Tyne, too, has its schemes of advancement, but they are not quite so nebulous as some others. At the meeting of the Tyne Improvement Commission in November Sir William Noble said that definite proposals from the London and North Eastern Railway for the development of Jarrow Slake were hoped for shortly by the Tyne Improvement Commission. He added that they had had several interviews with the railway Company on the future of the Tyne, and he looked forward to having the Jarrow scheme launched during his present year of office. One of the things to be done in this connection would be the dredging of the Tyne from Shields bar to Jarrow Slake, where the scheme provided for 35-ft. of water at low tide. When this was done the Tyne would be in the forefront of maritime rivers of the country and would have a depth of water equal to that at Southampton. One of the rumours current, subsequent to Sir William's speech, was that there was a possibility of Tyne Dock being taken over by the Commission, and it was stated that definite negotiations had been going on between the Commission and the London and North Eastern Railway for some time.

Good Report of Tyne Trade.

Sir William Noble, Bart., was elected Chairman of the Tyne Improvement Commission for the fifth time in succession at the meeting at the end of November. He had a very satisfactory report to give of trade locally. The tide of trade definitely turned at the end of last year, he declared, and was now better than twelve months ago. Coal shipped from the Tyne this year up to November 18th totalled 17,400,000 tons, or an increase over 1928 of 3,250,000 tons. By the week-end loading of ships under the arrangement made with the trimmers and other workmen, in eleven months 919 vessels were loaded which might otherwise have been detained over the week-end. These vessels, which might have been detained in port or not have come to the river at all, carried 2,500,000 tons of coal.

The s.s. " Elwick," which arrived in Howden Dock, North Shields, in the early morning of November 29th and began loading at 6 a.m., finished at 12.40 p.m., having taken six hours and 40 minutes to load a cargo of 2,316 tons at the rate of 347 tons an hour. She sailed at 1.30 p.m., having been in dock altogether 11½ hours.

Year's Operations on the Tees.

The operations of the Tees Conservancy Commission during the past twelve months were reviewed by Sir Hugh Bell, the Chairman, at the meeting of the Commissioners in November. Sir Hugh stated that the receipts for the year ended October 31st amounted to £176,571, an increase of £15,546 on the previous year, due mainly to an increase in river dues of £14,263. The expenditure during the year was £137,563, a decrease of £1,666 on last year. There had been a considerable increase in the import of iron ore and also in the export of sulphate of ammonia. The number of ships cleared in the river was 251 more than in the previous year, giving an increase in the net registered tonnage of 254,632 tons.

The report stated that the import of iron ore amounted to 1,798,606 tons, being 418,781 tons greater than in the previous twelve months. There were also increases of 21,605 tons in the import of pig iron, 2,315 of scrap steel, and 1,316 tons of machinery. Other increases in the imports included chemical manure 7,299 tons and wheat 19,260 quarters. The commodity to show the largest reduction was billets and blooms, which were down by 57,980 tons.

On the export side the total shipment of 237,420 tons of pig iron was 55,064 tons greater than in the preceding twelve months. Rails and fish plates shipped reached 205,644 tons, a decrease of 1,359; angles, bars, and plates at 190,917 were up by 24,800 tons, galvanised sheets at 108,193 tons were higher by 5,686 tons; whilst manufactured iron and steel not otherwise specified amounted to 125,391 tons, an increase of 28,212 tons. Coal and coke exports at 421,521 tons, however, were reduced by 22,227 tons. The report and accounts were unanimously adopted.

At least one coal record has been established on the North-East Coast this year, for the coal shipments at Blyth were heavier in the first eleven months of this year than in any previous year. Mr. C. E. Baldwin, General Manager to the Commission, stated that the tonnage of coal shipped on the River Blyth up to the beginning of December had exceeded 5,000,000 tons, easily beating the previous record, that of 1927, which was 4,969,859 tons. At the last meeting of the Blyth Commission it was reported that the coal shipments in the first ten months of the year showed an increase of 17 per cent. over 1913 and 23 per cent. over 1928. At the same meeting it was agreed to reduce by 25 per cent. the harbour dues on tugs using the port.

Statistics of coal shipments from the Wear showed a tendency up to the end of October to decrease, the average being a falling-off of 5½ per cent. The figures for the period this year were 3,986,611 tons, compared with 4,227,441 tons in 1928. This reduction, 240,000 tons, it may be noted was almost entirely accounted for by a decrease of more than 187,000 tons in the shipments to Italy. Latterly, however, there has been a distinct improvement in trade.

Personalia.

After 50 years in the service of Blyth Harbour Commissioners, Alderman T. C. Blackburn is to resign at the end of the year from the position of Collector of Dues. Alderman Blackburn is one of the best-known public men in Blyth, and in 1926-7 he was Mayor of the town.

Death recently has removed some personalities well known on the North-East Coast. No one was better known in the iron industry than the late Mr. C. Scorby Smith, who had risen into a prominent position in the firm of Messrs. Bolckow, Vaughan & Co., and was a director of several other Companies.

Captain George Pearl Cutting, J.P., who died in December, was a well-known figure at South Shields and was the last shipowner to have his headquarters in that seaport town. He was born in Norfolk and began a successful seafaring career at the age of ten, when he went to sea in sailing ships.

The Wearside shipbuilding industry is the poorer by the death of Mr. Thomas Henry Patterson, Chairman of Messrs. Osborne, Graham & Co., of Hylton, Sunderland. He was ex-Chairman of the Wear Shipbuilders' Association.

At the end of November Sir Hugh Bell, the veteran ironmaster, was re-elected for the 26th time Chairman of the Tees Conservancy Commission.

Sale of Grain Silos in Kiel.

An offer of Rm.80,000, previously stated to have been Rm.150,000, made by the Deutsch-Russiche Handelsgesellschaft of Berlin for the large grain silos in the Nordhafen, Kiel, has been accepted by the Kiel authorities. The property formerly belonged to the Vereinigte Schleswig-Holsteiniche Meiereiverbande (United Schleswig-Holstein Dairy Associations) which went into bankruptcy. The concern's liabilities included claims by the municipality of Kiel for unpaid rates and taxes and the sum obtained for the silos is only sufficient to cover the amount due. The property will revert to the municipality of Kiel at the end of 60 years.

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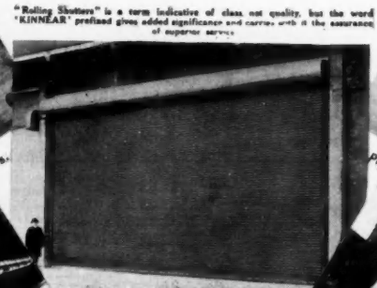
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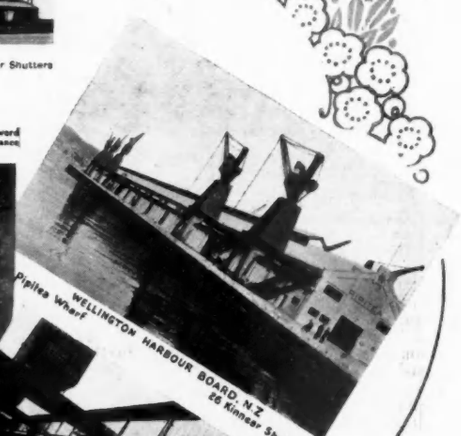
Gladstone Branch Dock No. 1.
53 Kinnear Shutters.
This shutter is one of seven about
56' 0" high x 34' 0" wide.



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GLASGOW: 121, West George Street (Central 1339)

Recent Legal Decisions.

THE s.s. "Ronda," belonging to the Bowring Steamship Co., Ltd., London, came into collision with a hopper-digger barge (No. 13) belonging to the Clyde Navigation Trustees. In consequence of the collision the barge was sunk and became a total loss. In an action at the instance of the Clyde Navigation Trustees the owners of the "Ronda" admitted liability, and the only question in the case was as to the amount of damages. Ultimately the only point at which the parties remained at issue was the value of the barge—a question which is obviously of practical interest to harbour authorities with dredger plant..

The pursuers (plaintiffs) averred that in order to replace the said hopper, which was a total loss, they had entered into a contract for a new hopper barge. The contract price for the new hopper barge was £20,790. From that cost the pursuers deducted a sum representing the value to them of the old hopper barge amounting to £8,421, thus bringing out the sum of £12,369 in respect of the replacing of the destroyed hopper barge, estimated so as to bring out the actual measure of the pursuer's loss falling to be made good by the defenders. In addition, the pursuers stated that they had suffered loss through being deprived of the use of their hopper barge from the date on which she was sunk to 6th March, 1928, the date of delivery of the new barge under the said contract. This loss the pursuers estimated at the sum of £2,000, which included, *inter alia* loss arising as a result of the pursuers' inability to carry out the normal extent of dredging operations as well as loss arising through being deprived of receipts in respect of periodical hiring of the hopper barge to third parties.

The defenders objected to both of these items. They contended that the pursuers were only entitled to recover the market value of Barge No. 13 as on the date when it became a total loss with interest until payment. The defenders estimated the value of Barge No. 13 at the said date to have been not more than £2,100. In any event, the item for loss of use of the said barge (£2,000) should be disallowed, as the pursuers had an ample supply of barges for their requirements, but if the use of an additional barge was necessary, the pursuers should have replaced Barge No. 13 at once by the purchase of another barge. They explained that there was at the time of the loss a market for such vessels, and that such vessels were at the date of the loss being offered through brokers. Further, there was also a market for barges which could have been converted at small cost into hopper diggers with cranes; and the pursuers could, failing the purchase of a vessel already so equipped, have purchased and converted a suitable barge.

After hearing evidence, the trial judge awarded the pursuers (1) the cost of a reasonably efficient second-hand barge, and (2) the cost of its adaptation for their special purpose. He also allowed a sum for the loss of the services of their barge for a period of two years after the collision. He assessed the total damages at £5,700, but did not specify how much fell under each head. He also allowed interest. In giving his judgment his Lordship sought to reach the principle on which damages should be measured, and his conclusions are worth noting:—

> "It is true that the wrongdoer must take his victim as he finds him, and the loss which he has to pay for is that which has actually followed from the injury done. Defender's Counsel said that the measure of damages here was the value of the lost ship—that his clients should pay only the market value of No. 13, having regard to her age, character and condition. I reject this view as inapplicable to the present case for these reasons. In the first place, there was no market in the ordinary sense for a dredger such as No. 13. Secondly, in my view, No. 13 had a particular and special value to the pursuers in the carrying on of their undertaking. On the other hand, I am unable to accept the capital value basis upon which the pursuers' claim is estimated.
>
> "No. 13 was a very old barge. It had been bought by the pursuers in 1871 at a cost of £5,540. In 1900 her engines were compounded at a cost of £888. In 1906 the barge was then equipped and adapted for her special purpose as a digger barge at a cost of £1,993. According to the pursuers' averments she would have been efficient for a further period of service of at least ten years. The new and modern vessel specially equipped by the pursuers in 1927 at a cost of over £20,000 cannot, in my opinion, be regarded as the replacement of this old digger. To allow the claim as made would, in my opinion, be to place the pursuers in a much better position by reason of the wrong than if the wrong had never been committed. For this reason I reject the basis on which the pursuers' calculation of loss has been made.
>
> "I think that the true principle upon which the damages should be assessed is to award the pursuers such sum of damages as will place them in the same position as if the injury done had not been committed. It is, in my opinion, the result of the evidence that there was no market for a dredger like No. 13. On the other hand, my impression on the evidence is that dredgers—capable of adaptation to meet the pursuers' requirements—were obtainable by purchase occasionally, and I do not think that the pursuers took effective steps to obtain one. Indeed, I think it was not their policy to do so.
>
> "My impression is that if the pursuers had advertised or intimated that they were in the market for a second-hand barge of a type somewhat similar to No. 13 they would have been able to acquire one by the end of 1927. I think the fair way in which to estimate the loss caused to pursuers is to give them (1) the cost of a reasonably efficient second-hand barge; (2) the cost of its adaptation for their special purpose; and (3) allow them a sum for the loss of the service of their barge for a period of two years from the date of the collision. If a fair sum of damages is arrived at on this basis, calculated on costs prevailing in 1927, then I think the measure is co-extensive with the loss inflicted. The proof does not afford either full or accurate information for such an estimate. I have endeavoured to use all the materials available, and applying my mind as a juryman to this difficult problem I assess the damages under head C at £5,700."

Against this finding the defenders appealed, but the judgment of the Court of first instance was affirmed. It was recognised that the usual method of assessing damages, where the injured vessel has become a total loss, is to ascertain what was its market value at the date of loss. But this is not the only method to be followed, for in some cases it may not be possible to ascertain market value. In the present case the ordinary method of assessment of damages by ascertaining the market value was impossible of application as there was no market for the class of vessel which was sunk by the defenders. On a consideration of the evidence the court was of opinion that this view of the trial judge was well founded. They were satisfied that there was no market in which a vessel like dredger No. 13 could have been sold or bought. The ordinary method of assessment by ascertainment of market value was accordingly unavailable. That being so, the defenders failed to satisfy them that the method chosen by the judge below was improper and erroneous. He set himself, by the method which he followed, to award the pursuers such a sum of damages as would place them in the same position as if the injury done them had not been committed. That was, manifestly, the proper end to aim at, and it was for the defenders to show that, by the method of assessment followed, it had not been attained, and they failed to do so.

Kiel Canal Traffic in November, 1929.

A report received by the Department of Overseas Trade from His Majesty's Consul-General at Hamburg states that there was a slight decrease in the volume of traffic during the month of November, 4,837 vessels aggregating 2,274,399 net. reg. tons passing through the canal as against 5,105 vessels aggregating 2,341,380 net reg. tons during the preceding month, but compared with November, 1928, there was an increase of approximately 20 per cent. The average tonnage of ships was 470 net reg. tons as against 425 net reg. tons in November, 1928. Steamers and motor vessels represented 92.57 per cent. of the total traffic and vessels with cargo accounted for 81.09 per cent.

Of the 4,837 vessels, 2,670 were registered as sea-going steamers aggregating 2,083,312 net reg. tons and of these 2,509 were cargo and passenger steamers of 2,076,901 net reg. tons, 152 tugs of 5,224 net reg. tons and 9 fishing steamers of 108,757 net reg. tons. There were also 1,947 sailing craft aggregating 108,757 net reg. tons, 168 lighters and barges of 60,243 net reg. tons and 52 naval, service and pleasure vessels of 22,087 net reg. tons. The vessels were loaded as follows: 10 with passengers, 26 with cattle, 288 with coal, 50 with stone, 55 with iron, 573 with timber, 576 with grain, 66 with ore, 906 with goods in bulk, 1,119 piece goods, 78 with general cargo, 1,090 empty or in ballast.

Personal enquiries regarding shipping and transport matters should be made at the City Office of the Department (Shipping and Transport Section), 73, Basinghall Street, London, E.C.2.

New Grain Port on the St. Lawrence River.

Announcement has been made at Fort William, Ontario, to the effect that the s.s. "Prescodoc," of the Paterson Line, cleared there recently with the first cargo of grain destined for the new 2,000,000 bushel elevator at Sorel, Quebec, 45 miles below the Port of Montreal at the mouth of the Richelieu River.

Plans to develop the harbour of Sorel as a grain-handling port were announced some months ago when it was stated that North American Elevators, Limited, incorporated to acquire and operate terminal grain elevators, had under construction a modern reinforced concrete elevator to have an initial storage of 2,000,000 bushels and provision for extension to a capacity of 6,000,000 bushels. The announcement was made by Messrs. G. H. Burgess and Company, of Toronto, and Messrs. L. G. Beaubien and Company, of Montreal, financial houses behind the project.

Glasgow Telegraphic Address—"Livadia Glasgow." Telephone—3743-4-5 Douglas.
BROWNLIE & MURRAY, LTD. STRUCTURAL ENGINEERS. POSSILPARK, GLASGOW. London—59/60, Gracechurch St., E.C.3.
London Telegraphic Address—"Sequence (Bilgate) London." Telephone—3454 Royal.

Scottish Harbour Notes.

Proposed Ship Canal.

AT a recently held meeting of Glasgow Chamber of Commerce it was reported that the Minister of Transport had appointed an inter-departmental committee to consider the proposals which have been made for the construction of a ship canal between the Forth and Clyde, and that the work of this committee would be to examine into the nature and extent of the advantages which might be obtained from the construction of such a canal and the probable economic results of its construction. After a full discussion—in the course of which the proposal was examined from every aspect—it was unanimously resolved that the Glasgow Chamber could not give the scheme their support. It was contended (it was pointed out) that if the construction of this canal was proceeded with it would give work to a large number of unemployed men, but the Chamber felt that—as no borings had been made or no detailed surveys taken—it would be a long time before work could be commenced.

Railways and Increases in Dock Charges.

At the same meeting of the Glasgow Chamber of Commerce a letter was submitted from the Association of British Chambers of Commerce enclosing copy of a confidential letter received from the Traders' Co-ordinating Committee on Dock Charges, showing the results of the hearing before the Rates Advisory Committee of the application by the railway companies for increases in the charges and dues on ships and goods. The terms of this letter were fully considered and its contents duly noted.

Lossiemouth Harbour.

It was intimated at a recently held meeting of Lossiemouth Town Council—in connection with a request by the local Civic Fathers for the remission of the existing debt of £5,000 on the old Lossiemouth Harbour—that the Development Commissioners did not recommend any further concession and that the Treasury was unable to make any further remission of debt. Keen disappointment was expressed at this decision, and the Town Council hoped that ways and means would later be found whereby this debt could be completely wiped off. It may be mentioned—by the way—that the construction of the old harbour improvement scheme was abandoned during the Great War.

Stornoway Improvement Scheme Loan.

In connection with the Harbour Improvement Scheme at Stornoway—the estimated cost of which is £45,000—the local Pier and Harbour Commission applied to the Public Works Loan Board to increase their promised loan to £25,600, but it is officially stated that this request has been refused. The Public Works Loan Board, however, suggested that application should be made for financial assistance from the Development Fund in respect of the cost of dredging, which is not covered by the Board's loan, and the Harbour Board decided—before communicating further with the Treasury—to await a reply to their application to the Scottish Fishery Board for the free use of one of their dredgers.

Shippers to Collect Harbour Dues.

While dealing with Stornoway it might also be mentioned that the local Harbour Commission have solicited the various shipping companies to collect the harbour dues of all inward and outward cargoes on a commission basis. The Commissioners have likewise informed the regular herring trade shippers that they will be expected in future to collect harbour dues on all inward and outward cargoes which they handle in accordance with the usual custom at all the leading herring ports, both in England and Scotland where they operate.

Girvan Harbour Loan.

A deputation representing Girvan Town Council recently obtained an interview with Mr. James Brown (Member of Parliament for South Ayrshire) regarding the possibility of obtaining assistance from the Treasury by way of relief from the loan in connection with Girvan Harbour. Following this interview an application was forwarded to the Secretary of State for Scotland, and Mr. Brown also promised to interview this Minister with reference to this question. A report to this effect was given at a recently held meeting of Girvan Town Council, when the members generally expressed great satisfaction at the assistance given by Mr. Brown in the matter.

New Pier Proposed for Arinagour.

A proposal is afoot to erect a new and up-to-date pier at Arinagour, Coll, and this proposition is now under the consideration of the Mull District Council. The proposal is to erect a pier to jut 100-ft. into the loch (a little south of the present abandoned pier) with a frontage of 85-ft. At this particular spot the depth of water is very suitable and free from all submerged rocks, and, it is understood, has been reported by an expert engineer as of a very favourable character. It may be added that the present pier at Coll can only be used at certain stages of the tide owing to the vicinity of submerged rocks, and that for many years nothing has been done to keep the old pier in a proper state of repair.

Proposed Work to find Employment.

A rumour has gained circulation that the Secretary of State for Scotland has approved of a proposal for submission to the Lord Privy Seal which, if given effect to, would provide a large measure of employment. This project aims at the modernisation and reconstruction of the waterway passing through the Great Glen of Scotland, and it is generally felt that for naval purposes an up-to-date waterway from the North Sea to the Atlantic would be of the utmost strategic importance. That the Caledonian Canal is now obsolete (for most practical purposes) is admitted by everyone who has considered the question of water transport.

Proposed New Works at Aberdeen.

Aberdeen Harbour Board have under consideration a proposal to proceed with various improvements at the local harbour at the estimated cost of £168,100, subject to the works being approved for grants by the Unemployment Grants Committee. The proposed works include reconstruction of the Western portion of the Albert Quay at a cost of £64,000; reconstruction of the east portion of the Albert quay at a cost of £72,100; extension of the Commercial Quay at a cost of £15,500; and the provision of a grab dredge at a cost of £16,500.

Inverness Harbour.

Although nothing official or definite has been achieved in connection with the huge harbour undertaking at Inverness, which is estimated to cost the sum of £25,000, there is a distinct feeling of optimism locally with regard to the ultimate commencement of this scheme following a conference between an Inverness delegation and the Secretary of State for Scotland. The Secretary of the Inverness Harbour Trust (Mr. D. Noble) states that the deputationists were very favourably impressed with their interview with Mr. Adamson, who examined the pros and cons in a very thorough manner. " That the matter was gone into very fully by Mr. Adamson," states Mr. Noble, " is evidenced by the fact that he asked the deputation to have the unemployment figures in Inverness made known to him, and also enquired whether consumers would benefit by the proposed changes."

Another Large Grain Carrier on the Canadian Lakes.

The Midland Shipbuilding Company has launched at its yards at Midland, Ontario, a new vessel to be engaged on the transportation of grain on the Great Lakes. The vessel will be an addition to the fleet of the Canada Steamship Lines, Ltd., and will be 596-ft. in length, having a breadth of 60-ft. and a moulded depth of 32-ft. It will be capable of carrying 440,000 bushels of grain and will be in the ore trade as well. The name of the vessel is the ss. " Stadacona," and other large craft built in the same yards are the ss. " Gleneagles " and the ss. " Lemoyne," the latter of which holds all of the grain-carrying records of the lakes.

Additional Grain Handling Plant at Antwerp.

With a view to improving the grain handling facilities at the Port of Antwerp, an order has been placed with Henry Simon, Ltd., Conveying Engineers, Manchester, by Magasins a Grains d'Anvers for a travelling pneumatic grain plant for discharging grain ships and barges at Antwerp Docks.

The plant will have a handling capacity of 90 tons per hour, and will be provided with two booms carrying flexible telescopic pneumatic intake pipes.

The whole of the machinery will be mounted on a steel tower which will be capable of traversing the quay at a speed of 50-ft. per minute. The tower will be provided with jacks so that the bogeys can be turned through 90 degrees, enabling the plant to be traversed along another quay lying at right angles.

The exhauster will be of the turbo type and will be fitted with control mechanism for automatically regulating the speed to meet the conditions of discharge.

Grain will be delivered to a 2-ton weigher in the tower and then transferred automatically either to an existing band conveyor in the quay or to barges, railway wagons or road vehicles. Machinery will also be provided for weighing and sacking-off grain and delivering the sacks direct to railway wagons or lorries. The plant will be electrically driven throughout and will be a self-contained unit.

Ceylon and Indian Notes.

New Steamer Service.

A NEW steamer service is to be started shortly between Talaimannar and Rameswaram, to be maintained by the South Indian Railway, who have indented two 9,000 ton steamers, the "Irwin " and the "Goschen."

The "Irwin," the first of the two light steamers, was launched nearly six months ago at the yard of Messrs. David and William Henderson and Co., Glasgow. She arrived in Colombo some weeks back, fitted with the most up-to-date machinery needed for vessels of her type, and carrying the latest in life-saving apparatus. She has accommodation for over 1,500 passengers, her space being divided into two classes, first saloon and deck. She was brought to Colombo under the command of Captain J. Abraham with the assistance of three officers, a mate and a crew of 25. The entire crew were paid off on arrival at this port, and it is understood that the "Irwin" will be navigated by an entire crew of Asiatics. The captain, too, will be sent down by the South Indian Railway authorities, after which she will be taken to South India.

Calcutta Port.

It has been officially announced for general information that the City and Port of Calcutta are declared infected with cholera.

Colombo Harbour Appointments.

The Crown Agents for the Colonies have selected Mr. D. M. C. Berry for the post of Second Assistant Docking and Shipping Master for the Colombo Harbour Engineer's Department.

The Secretary of State for the Colonies has approved the appointment of Mr. C. A. Brabender to the post of First Engineer of the new harbour tug " Hercules."

Preparing for the Monsoon.

The position of ships in the Colombo Harbour has been altered in preparation for the north-east monsoon, and vessels are all facing in that direction since last month.

" Stilton Hall " Wreck.

The captain and officers of the West Hartlepool Steam Navigation Company's 6,055 ton steamer " Stilton Hall," which was lost recently 40 degrees south of the equator, as a result of explosions from spontaneous combustion, were among the passengers on board the Orient liner " Orsova," which passed through Colombo recently. At the time of the mishap the " Stilton Hall " was bound from Immingham to Port Adelaide with a shipment of 10,000 tons of coal. The fire broke out on September 19th 2,000 miles from Fremantle, and the officers and 38 members of the crew, including twelve Arabs, escaped in life boats and were picked up in an exhausted condition by the " Anthea," after having remained in the high seas in open boats for 44 hours.

Interviewed in Colombo, the chief engineer related the terrible explosions which occurred and detailed their escapes in lifeboats, in which they drifted until they were picked up by the " Anthea " and conveyed to Melbourne. It was stated by the rescued officers that the journey from Britain to Australia was too long for the safe transport of coal. There was always a big danger of combustion if the journey lasts more than fifty days on a low powerful vessel. In conclusion, they said that they had lost all their belongings and were travelling home with scarcely anything to wear.

A Rare Visitor to Colombo.

After a long interval the Colombo Harbour was once again entered by a Soviet ship. The white hull and black funnel of the " Dalnewostolschnik " showed a distinct difference from those black and grey ones so familiar in the P. and O. and other lines. The " Dalnewostolschnik " is under the command of Captain Stuckenserg, also a Russian, and arrived in port last week from Konisberg in ballast on her way out to Vladivostock. Neither the captain nor any of his officers are conversant with the English language and find it very hard to make themselves understood to people here.

New Vessel for the Far East.

Having been for some time on the Australian run, the " Beltana," one of the large P. and O. liners, has been transferred to the United Kingdom—Japan service. The " Beltana " is under the command of Captain R .C. Dene and is a steel twin-screw steamer of 11,167 gross tonnage and 6,975 nett tonnage. She was built in 1912 at Greenock by Caird and Co., Ltd., for the P. and O. Steam Navigation Company, Ltd., being 500.1-ft. long, 62.2-ft. broad and 37.8-ft. deep. She was engined by the builders and is capable of developing 1,200 n.h.p.

Bombay Port Trust Personnel.

The Government has appointed Mr. R. R. Bakhale as a member of the Bombay Port Trust Board vice Mr. Syed Munawar, during the absence of the latter on deputation to Geneva.

Bombay Port Revenue for Half-year ending September, 1929.

The revenue of the Port of Bombay from all sources, according to the Chief Accountant, for the half-year ending 30th September, 1929, amounted to Rs.143.93 lakhs, an increase of Rs.1.28 lakhs over the actuals of the corresponding period of last year, " in spite of the general reduction in wharfage charges " which took effect from 1st April last. Reviewed as a whole, the position is satisfactory; the improvement is reflected in the receipts from all the revenue-earning departments of the Trust. Receipts from wharfage proper (excluding surtax) at the docks and bunders showed an increase of Rs.5.66 lakhs over the corresponding period of last year and railway earnings are higher by Rs.57,000.

Estimates of Expenditure of Bombay Port.

Estimates of expenditure for the following works have been sanctioned against the relative Budget provision at a recent meeting of the Bombay Port Trust:—

Rs.15,970 for sett-paving level crossings leading from Mansion Road into Princes and Victoria Docks.

Rs.9,200 for re-surfacing Akbar Press Road, including drainage improvements and kerbing.

Rs.7,000 for renewing certain hydraulic pressure pipes in Victoria Docks.

A renewal of a lease on the Elphinstone Estate was sanctioned at a considerably reduced rate.

Colombo Port Commission Matters.

At a meeting of the Colombo Port Commission the question of the renewal of the lease of the site at the north side of the Graving Dock to the Eastern Telegraph Company, Ltd., for the storage of submarine cable, for a further period when it expired on December 31st, 1929, having been considered, the renewal of the lease for a further period of one year on the same terms as at present was approved.

The meeting also considered the question of renewal of the leases of lots at Barge Repairing Basin, which expired on December 31st, 1929. It was decided, after discussion, that the leases held by the following companies should be renewed on the same terms as at present: Messrs. The Cargo Boat Despatch Co., two years; Messrs. Sarafally Fakrudeen and Co., two years; Messrs. The Colombo Cargo Boat Co., two years; and Messrs. Hoare and Co. (Engineers), one year.

The meeting also further considered the application made by Messrs. Carson and Co., Ltd., for the lease of the remaining portion of plot marked 13 on the Lake Plan, to provide housing accommodation for their labour at Lake View Stores, which adjoins the land in question. The chairman undertook to bring up the question at the forthcoming meeting of the Lakeside Development Committee.

The Commission was opposed to the use of this water frontage land for tenements unless no other land is available for the purpose.

Half-berths in Colombo Harbour.

The report of the consulting engineers on the proposal to lay mooring buoys in the Colombo Harbour to secure the sterns of ships berthing in the half berths in the Eastern Tier during the south-west monsoon, together with the observations thereon of the Master Attendant and the harbour engineer, respectively, was considered at the last meeting of the Colombo Port Commission. It was, after mature deliberations, decided that the harbour engineer should be asked to forward an estimate for the moorings as approved by the consulting engineers.

Foreign Trade of Karachi.

The statistics of the foreign trade of the Port of Karachi for October issued by the Collector of Customs show that the total value of imports (merchandise) amounted to Rs.1.77 crores, a decrease of Rs.1.19 crores, and that of exports to Rs.1.31 crores, a decrease of Rs. .73 lakhs as compared with the figures for the corresponding month last year. The progressive totals for the seven months ending October show a decrease of Rs.2.91 crores or 15 per cent. under exports as compared with the corresponding period in the previous year. The principal decreases in imports during October as compared with the corresponding month last year occurred under cotton manufactures (valued at Rs.45 lakhs, decrease Rs.42 lakhs); oils (valued at Rs.1 lakh, decrease Rs.24 lakhs); metals and ores (valued at Rs.15 lakhs, decrease Rs.11 lakhs); sugar

Ceylon and Indian Notes—continued.

(14,400 tons valued at Rs.23 lakhs, decrease 2,700 tons and Rs.6 lakhs); and woollen goods (valued at Rs.14 lakhs, decrease Rs.5 lakhs).

In exports the principal decreases occurred under cotton (7,400 tons valued at Rs.52 lakhs, decrease 3,800 tons and Rs.50 lakhs); rapeseed (700 tons valued at Rs.2 lakhs, decrease 3,100 tons and Rs.7 lakhs); wool (1,700 tons valued at Rs.35 lakhs, decrease 290 tons and Rs.5 lakhs); and raw hides (16 tons valued at Rs.21,000, decrease 385 tons and Rs.4 lakhs).

Additional Crane for Colombo Graving Dock.

The Colombo Port authorities have decided to erect an additional crane for the Graving Dock. The possibilities of extending the sphere of action of this crane were briefly discussed last month, and it was agreed that the actual site for the crane should be decided at a later date.

Extensions to Colombo Customs Office.

It is announced that the Ceylon Government has decided not to approve any expenditure which is in the least likely to cause an excess on the provision of Rs.35,000 for the proposed extensions to the Customs office. This decision of the Government was discussed at a recent meeting of the Port Commission, and it is understood that the members agreed that the cost of the alterations required in the existing office should be met from the vote for minor works.

Colombo Port Supplementary Provision for 1929-30.

The Finance Committee of the Ceylon Government have approved the supplementary estimates amounting to Rs.232,300 as asked for by the Port Commission.

Colombo Port Dredging.

During the last few months the dredger "Sir William Matthews" was engaged in deepening the coal berths area, and was employed in berth No. 17 S.W., says the port authorities. The dredging of this area was interrupted for three days when the dredging over the site of Mooring No. 11 was carried. During the period a total quantity of 27,950 cubic yards of dredged material was removed and deposited at sea. The dredger "Sir John Coode" was laid up during the whole of the period under review.

General—Colombo Port.

Permission has been granted to Messrs. Hull, Blyth and Company (Colombo), Ltd., to land on their coaling grounds coal belonging to Messrs. Clark, Young and Company.

The sett paving of part of the area at the reconstructed Kochchikade warehouses has now been completed.

The crane roads on the quay and sett paving round the new Customs House at the Passenger Jetty have been completed. The substitution of big six roofing and asbestos ceilings for the glazed roofing of the new Customs House has also been completed.

As danger exists of carts and lorries trespassing on the railway line in the Colombo Fort and Delft warehouse areas, a guard rail has been fixed along the railway from the Fort warehouses area to the Delft warehouse area to prevent traffic going on to the railway.

The building of the new hull for the ten-ton digger which was undertaken recently has been completed. A new wooden hopper barge has been built to take the place of one steel hopper barge which is no longer fit to go to sea.

The twelve special quarters at Bloemendahl for artisans, the construction of which was also undertaken recently, have been completed and all are occupied.

Ceylon's Foreign Trade.

Ceylon's imports and exports during the year 1928 amounted in value to Rs.412,119,639 and Rs.375,111,350 respectively.

The Port of London Authority.

London's Increasing Shipping.

THE PORT OF LONDON shipping figures are up 2,000,000 tons for the seven months ended 30th October, compared with the same period in 1928. The 34,793,215 net reg. tons of shipping which used the port during the period in question is a record in the history of the port.

Additional tonnage in vessels arriving from India, China, British West Indies, Guiana, British Honduras, United States, South America, Baltic and North European ports accounts for the increase.

Exports passing over the Authority's quays during the seven months ended October show an increase of nearly 7 per cent., the figures being the best for any similar period since 1920.

Shipping traffic of the United Kingdom was distributed among the ports as follows during the seven months ended October this year:—

	Net reg. tons	Per cent. of U.K.
London	34,793,215	15·1
Liverpool	21,075,190	9·0
Southampton	17,040,507	7·45
Hull	7,451,793	3·25
Manchester	4,886,415	2·1
Bristol	4,419,078	2·0
Other Ports	136,021,360	61·1

Reduction in Dues.

The Port of London Authority have decided to make certain reductions in the dues on ships using the docks of the Authority and have adopted a revised schedule of such rates which came into force on the 1st January, 1930.

The principal alteration relates to vessels in Class I., i.e., vessels laden from or for ports outside Europe, outside the Mediterranean Sea and the Black Sea. The rate on these ships which is now 2s. 2½d. per net registered ton less 10 per cent., will be reduced to a net figure of 1s. 10d. per net registered ton. There are several other alterations and revisions which are more or less consequential on the reduction to Class I. ships.

The existing printed schedule of dock rates on vessels gives rates which are subject to a 10 per cent. reduction, but the new schedule will show net rates.

The saving to ship owners represented by the new schedule is estimated at about £75,000 per annum.

Works at Docks Completed.

Works at the docks involving an aggregate expenditure of nearly £55,000 were reported to the Port of London Authority at their meeting recently as having been completed.

These works, which in an undertaking of smaller magnitude than the Port of London would be regarded as of the first importance, include renewal of quays, railway and crane tracks, hydraulic mains, renewal of floors and glazing of roofs of sheds, overhaul of machinery, relaying of roads, repairing of lock gates, equipment of offices, provision of sanitary and washing accommodation and drainage.

Boundary Stone Erected.

The Port of London Authority and the Thames Conservancy have erected jointly a boundary stone at Teddington to mark the junction of their respective jurisdictions.

The mark takes the form of a stone column on either isde of which have been carved the arms of the Port Authority and the Thames Conservancy.

The jurisdiction of the Port of London Authority extends from Teddington to an imaginary line between Warden Point and Havengore Creek (Essex), a distance of nearly 70 miles.

Resignation.

Admiral The Hon. Sir Algernon D. E. H. Boyle, K.C.B., C.M.G., M.V.O., has resigned his position as one of the nominated members of the London County Council of the Port of London Authority owing to increasing deafness. Admiral Boyle has taken this step with great reluctance, but considers that in the circumstances there is no other course open to him.

In his stead, the London County Council have appointed Vice-Admiral Alan G. Hotham, C.B., C.M.G.

General.

Following upon the completion of the million-and-a-quarter pounds improvement scheme at West India and Millwall Docks vessels of larger size are now using that system. Out of 14 ships now in West India Dock, 7 range from 5,000 to 7,000 net reg. tons—a contrast to the vessels formerly seen there.

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The Port of London Authority have decided in the interests of London's port and trade generally to take part in the International, Colonial and Maritime Exhibition to be held at Antwerp from April to October this year.

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The Port of London Authority's telephone bill amounts to about £3,000 each quarter. The whole of the Authority's organisation from London to Tilbury is linked up by a private automatic telephone service, the nerve-centre of which is at the Authority's headquarters at Trinity Square.

Italian Harbour Affairs.

IN connection with Italian harbour affairs during the past few weeks it may be noted that the Consorzio Autonomo del Porto di Genova has held its general meeting and that Commander Negrotto Cambiaso, the new head of the Genoese Harbour Administration presided. According to the report of Commander Marquis Negrotto Cambiaso, the pilots' tower on the extremity of the Molo Giano was inaugurated on October 27th, 1929, as well as the three new large warehouses on the Caracciolo Mole, and the largest of them was put into service on October 20th. This new warehouse is to be employed for foreign goods in transit through the port of Genoa, and there is no doubt that this improvement is bound to have a noteworthy influence on Genoese shipping. The other two warehouses on the Caracciolo Mole will be put into service in the course of the next few months, as well as the 18 electric cranes to be erected on the Molo Caracciolo itself. The cost of this will reach about 20,000,000 lire. Furthermore, it is expected that the new warehouse on the northern part of the Assereto mole will be delivered within the next few months to the Istituto Laniero Italiano, which will use it as a wool transit point and market. The construction of this warehouse cost 3,000,000 lire, whereas it has been rented to the Istituto Laniero for about 240,000 lire yearly. After having referred to the construction of the Officina Meccanica Consortile and to the new road from Genoa to Sampierdarena, etc., the report points out that there are under construction the first two moles of the Benito Mussolini Dock, measuring 400 metres in length and 140 metres in breadth. Admiral Cagni, the former President of the Consorzio Autonomo del Porto, however, before leaving his post, made arrangements for the extension of the breakwater Principe Umberto to the mouth of the Polcevera for a length of 1,500 metres over the 800 metres considered by the project, and this in order to render possible the construction of further moles in the Benito Mussolini Dock. The cost of these improvements will reach, according to the estimates which have just been made, 64,000,000 lire, which is to be covered by the allowances made by the Government to H.E. Cagni. The report further points out the fact that the western part of the maritime passenger station on the Ponte dei Mille has been completed, and it is expected that the whole building will be completed within the first months of 1930. The President of the Consorzio has made arrangements to complete the project concerning the construction of two terraces on the two sides of the building in order to render possible the landing of passengers directly from the liners on to the first floor of the building. After having referred to further improvements the report adds that the aeroplane port will also be completed within the next year and that it has been decided to build a new warehouse on the Calata del Passo Nuovo to be employed, as are those on the Ponte Caracciolo, for export trade. Reference is also made in the report to the recent repair work undertaken to the harbour facilities in the port of Genoa and to the fact that six new 1.5-ton and twelve 1.5-ton and 3-ton electric cranes have been added to the existing unloading facilities on the Ponte Caracciolo and on the Ponte Assereto. The fact that the Navigazione Generale Italiana and the Lloyd Sabaudo have decided to build ships of over 40,000 gross tons has necessitated the need for the following works:—

(a) To build a fourth large drydock 300 metres long or to increase one of the existing drydocks by 20 metres; but, although the latter project appears to experts to be the easiest settlement, it is not the best one;
(b) the cutting of the head of the Molo Vecchio;
(c) the increase of the length of the Ponte dei Mille by 80 metres; and
(d) the transformation and increase of the length of the Ponte Doria so that one side will have the necessary depth of water and a length of at least 250 metres, thus ensuring space for at least three large liners in the port of Genoa.

The construction of these harbour works involves an expenditure of 70,000,000 lire, and the Consorzio Autonomo del Porto di Genoa is negotiating the assistance of the Government.

It will be noticed by the foregoing remarks that Commander Negrotto Cambiaso is showing no less energy than his predecessor, and consequently there is no danger that the progress of the harbour improvements in Genoa which have been noticed in the course of the past few years will be subject to any hindrance; also steps have been taken to cut down tariffs and to facilitate unloading and loading, cancelling any unnecessary bureaucratical steps hindering trade in the harbour.

According to statistics which have been published by the Consorzio Autonomo del Porto di Genoa, the following schedule might give an idea of the development of shipping at that port during the first ten months of 1929:—

IMPORTS	(January to October).	
	1928.	1929.
Coals	2,533,214	2,545,508
Cereals	1,223,126	911,613
Cotton	136,132	154,709
Metals	329,810	365,890
Oil Seeds	175,131	183,219
Oils	237,385	274,455
Phosphates	157,343	170,849
Other goods	1,121,926	1,123,981
Total	5,914,067	5,730,224
EXPORTS.		
General cargo	807,356	877,969
Bunkers—Coals	288,265	266,057
Oils	115,796	138,128
Total exports ...	1,211,417	1,282,154
General traffic ...	7,125,484	7,012,378

It will be noticed that there is a slight decrease in the general shipping at Genoa, but if one goes over the figures included in the above schedule it will be noticed that such decrease is due to the decline in the imports of cereals owing to the fact that, thanks to the excellent wheat crop in Italy, the imports in general have decreased.

There is much interest in Genoa regarding the question of the electrification of the railways, as the Government's programme includes also the electrification of the line from Voghera to Chiasso. When this line is electrified the whole Gottard Bahn line up to Leghorn will be operated by electricity for over 1,000 kilometres, and this will no doubt facilitate the development of shipping, owing to the better facilities for forwarding goods arriving by sea. However, Premier Mussolini is following with the greatest attention also the possibility of undertaking a fifth line through the Stelvio Pass to connect Italy with Switzerland, Austria, and Germany in the immediate neighbourhood of Milan.

The development of shipping at Genoa must also be considered from the point of view of the increased shipping connections, as several Italian shipowners have started new freight services, particularly to North and South America, while the Navigazione Libera Triestina has decided to start a new monthly passenger and freight service enabling one to reach Capetown in 25 days from Genoa and 23 days from Marseilles. Foreign shipowners do not appear to be second it. this activity, as the decision of the Ben Line to call at Genoa with their ships of the Indian service has been followed by the Spanish Pennillos Line, which has established a fortnightly service between Genoa and Santa Cruz de Teneriffa.

Efforts made at Genoa to develop trade are also taking place at Naples, where H.E. Castelli, the High Commissioner for Naples, has taken up the question of the reorganisation of the port, and no less activity is shown in the Adriatic, where at Trieste, after about ten months of uninterrupted increase of shipping, the figures for October have shown a slight decrease, probably due to temporary fluctuations, as it ought to be taken into consideration that owners are not neglecting any occurrence to promote trade, as the efforts of the trip of Italian exporters to China and Japan on the motor ship "Remo," of the Lloyd Triestino, and the announcement that commencing January 1st there will be regular sailing to the Far East on the 1st and 16th of each month from Trieste, is followed now by reports of an action to secure for Trieste further Polish transit trade.

According to an inquiry recently made in Poland, it would appear that shipments from Poland now employ six days to reach Trieste, while it is hoped that at least shipments of perishable goods will employ in the future not more than 48 hours, particularly since the delay is due to the Vienna Arbitration. It is believed that there are still further opportunities to increase Polish transit trade through Trieste, since much of the Bielsko textiles and Polish sugar is now exported to the East through London, and Polish exports to Japan reached 1,600,000 yen in 1928.

Another item of interest in connection with shipping at Adriatic ports which deserves certain attention is the fact that the motor ship "Remo" of the Lloyd Triestino, bound for Japan, loaded 5,000 tons of sugar and other goods at Fiume in three days, thus making a record shipment. There is no doubt that this result still shows the efficient situation of the port of Fiume, and it should be exploited much more than it is now for transit trade to the Balkans, rather than leaving ships waiting for space on the open sea in the port of Sussak, situated not a mile from Fiume.

However, an idea of the general course of traffic at the various Italian ports may be had from the following figures concerning the main goods imported at chief Italian ports during the first ten months of 1929:—

Italian Harbour Affairs—continued.

	Coals. Tons.	Cereals. Tons.	Cotton. Tons.	Phosphates. Tons.
Genoa ...	2,546,028	885,072	154,708	170,849
Savona ...	1,369,007	———	———	4,962
Leghorn ...	925,658	91,353	2,530	55,295
Civitavecchia ...	520,231	67,780	420	8,740
Naples ...	799,248	307,861	8,560	2,087
Palermo ...	245,236	27,472	———	5,697
Catania ...	136,629	63,621	———	———
*Trieste ...	440,513	160,733	42,321	———
Fiume ...	47,913	1,378	234	31,493
Venice ...	1,099,845	299,259	36,487	108,732
Ancona ...	308,496	23,202	122	43,693
Bari ...	112,761	50,035	———	———

* Figures for the period from January to August, 1929, only.

At Trieste the S.A. Ford d'Italia continue to work, and there is no sign that they are planning to transfer their works elsewhere, although reports from Jugoslavia say that these works will be transferred to Antivari.

These notes cannot be closed without mentioning the great development of Italian cranes and, in general, the port unloading facilities building industry, particularly at Trieste, where the Stabilimento Tecnico Triestino, for example, has recently secured an order for two large electric coal elevators for the port of Piræus, besides the cranes under construction for the port of Naples, for an amount of about 5,500,000 lire.

Hull and the Humber.

Should Hull have a Dock Trust?

SIR DOUGLAS FOX and Partners, the consulting engineers appointed to report on the proposal of a tunnel or bridge to connect the two banks of the Humber between Hull and North Lincolnshire, have been granted permission by the Humber Conservancy Board to make test borings at selected points in the river both east and west of the city of Hull. The permission has been granted subject (a) to the approval of the Board of Trade, (b) to the work being carried out to the satisfaction of the Conservancy Board under the inspection of their engineer, (c) to each bore being proceeded with and completed without interruption and to the bore tubes being drawn on completion of the operations, (d) to the Conservancy Board being furnished with particulars of information obtained as a result of the borings, and (e) to the Conservancy Board accepting no risk in the matter. It was also decided at the meeting of the Board to accede to the wish of Sir Douglas Fox and Partners to be given facilities for inspecting the Conservancy Board's surveys showing the position of the channel during past years and to furnish them with a copy of the most recent survey.

The general inclination is to believe that public opinion will favour a tunnel under the Humber to a bridge over it, and this has received emphasis from the Conservancy Board's resolution stating that the Board view with grave apprehension the possibility of the construction of a bridge and for this reason "cannot see their way to express opinions on any special features which a bridge would require, and that if and when a scheme should be designed it would demand exhaustive investigation and examination on the part of the Board as the authority charged with the protection of interests of paramount importance—those of the navigation." Four borings, it was stated, had already been made between the upper end of the Hull Fish Dock and Paull, outside the navigable channel. The report of Sir Douglas Fox and Partners, who are receiving a fee of four thousand guineas, is to be ready by the end of February.

A tunnel under the Humber was first proposed as far back as 1872, in which year it is recorded the railway facilities at Hull broke down completely and a state of chaos supervened on the docks and railway. As a consequence an influential Committee was formed and a Bill presented to Parliament in the ensuing Session. Notwithstanding powerful support, both locally and from the principal towns in the West Riding and the Northern Midlands, the Bill was rejected by the Committee of the House of Lords, the voting being two in favour and three against. The consulting engineer engaged was Mr. John Fowler, and in his report he ruled out a bridge mainly on the score of expense and the construction of piers in a tidal river. He favoured a tunnel and chose as its location a certain position between Hessle and Hull where for a distance of a mile-and-a-half there were no shifting sands and where the ebb tide and the flood tide coincided. Mr. Fowler also reported that under the bed of the Humber there was solid chalk very well suited for tunnelling operations and that there was great facility owing to shallow and regular water for the construction of a tunnel by either of two plans which could be adopted by engineers—viz., going deep enough to tunnel through the chalk in the ordinary way by an ordinary tunnel, or by adopting the pneumatic process of putting in foundations and taking it near the surface of the bed of the river. As the result of borings Mr. Fowler personally preferred the pneumatic process. The top of the tunnel was to be at a minimum depth of 10-ft. below the bed of the river. There were to be two tunnels, in fact, separated by a partition, this methed being said to be the stronger and the better for ventilating purposes. Each tunnel was to be 18-ft. by 15-ft. 6-in. and made of brickwork. The time for completing the work was two years, and the estimated cost of tunnel and railways was just under one million pounds sterling. The cost of the tunnel itself was put at £375,000—quite modest sums, compared with what the projects would cost to-day.

Sir Arthur J. Atkinson, M.B.E., presiding at the annual meeting of the Hull Chamber of Commerce and Shipping, stated that the tonnage of ships entering the Hull docks in the first ten months of the year was higher than last year by 5.5 per cent. and in excess of the highest pre-war figure. The increase, he said, appeared to justify the representations the Chamber had made and would continue to make to the London and North Eastern Railway Company for improved equipment and increased facilities on the dock system at Hull. From the point of view of volume the trade appeared to be well maintained, but it had a tendency nowadays to find its way into fewer channels. Sir Arthur, referring to the establishment at Hull of one of the finest airports in the Kingdom, said he felt that Hull had a great future as an airport for cross-country and cross-sea traffic and that before many years were past the expenditure would prove to have been fully justified. He hoped to see the seaplane base at Paull in working order very soon and daily communications by air with North European and Scandinavian countries.

Mr. Minnitt Good, Chairman of the Shipping Committee, who seconded the adoption of the report, animadverted very severely upon the attitude of the L.N.E.R. Company towards improvements required at the Hull docks, and said that it the Company could contemplate an expenditure of £100,000 on new warehouses and cranes at Grimsby they ought to consider the expenditure of not less than £250,000 at Hull, apart from the enlargement of the King George Dock. Whether that dock would ever be completed while the docks were under the management of the L.N.E.R. he had no idea; whenever they read of schemes to be carried out by a railway Company they invariably related to railways. "For a very long time," continued the speaker, "it has been in the minds of many of us that the L.N.E.R. are not the proper authority to administer the interests of this port. This is the only great port on a great river that is controlled by a railway authority; London, Liverpool, Bristol, Glasgow, Leith, and Newcastle all have a port or river Trust, not working for profits, but reducing charges where they can and using such surplus as they make for the improvement of their estate from which they derive their revenue and for giving traders additional facilities. Hull is the natural port of ingress and egress for the greatest industrial area in the country. New trades are continually springing up, and it is only right that we should have the best facilities possible for the rapid and economical handling of traffic." In conclusion, Mr. Good declared that "unless the directors of the L.N.E.R. Company can give us those additional facilities which Hull needs, then the time will have arrived for the Government to consider whether under the powers it possesses it should not take the port away from the L.N.E.R. and put it into the hands of a trust guided by men who know the needs of the port and will supply it with what it wants."

Major W. H. Carver, M.P., a director of the L.N.E.R., doubted whether Parliament would care to act on Mr. Good's advice and take the Hull docks from the railway Company, for he had always understood the docks *per se* did not pay. He added that only a month before the Chamber had passed a series of recommendations for the improvement of the port and that several were under the serious consideration of the directors. He assured them that the Company were willing to take over the land known as the Western Reservation as

Hull and the Humber—continued.

soon as the Hull Corporation put forward reasonable terms. The Company, in any case, must be allowed to develop it in their own way. Many improvements at Hull had been completed—in particular at Saltend for the convenience of the petroleum industry, and the Fish Dock Market that had unfortunately been destroyed by fire but would be rebuilt in a very short time.

A matter of great concern for the trade and commerce of Hull is the proposed abolition of the street crossings and the carrying of the railways to and from the docks on the high level. Already the old Hull and Barnsley Railway and the lines to the new King George Dock are on the high level, and it is now proposed to bring the railways connected with the old system of docks and the Central (Paragon) Station into line. To this end a scheme to cost roughly a million and a quarter has been prepared, and at the December meeting the Hull City Council gave approval to the Bill, which is being submitted to Parliament for this purpose. At the subsequent ordinary meeting the Council agreed to the agreement being entered into with the L.N.E.R. if the scheme is carried out. When, however, the Council came to the Finance Committee's minutes, which disclosed the actual cost to the Corporation, the Council unanimously turned the scheme down. This, it is explained, means that unless more financial assistance is obtained from the Government than at present indicated the scheme will not be gone on with. By approving the agreement with the L.N.E.R. Company no further financial help from the railway Company apart from £100,000 promised is anticipated, though there is a very strong feeling in the city that this sum is too small—in other words, that the railway Company has got the best of the bargain.

At a meeting of the Hull Port Development Committee complaints were made that a London daily newspaper had circulated erroneous statements to the effect that ship-repairing was being driven away from Hull by reason of exorbitant drydock charges. Mr. E. V. Taylor, District Manager of the L.N.E.R., Company, owners of the Hull docks, said that it was impossible to make a definite statement or compare the drydock charges in Hull with those of the Tyne, at Liverpool, or anywhere else without most careful consideration of the varying conditions. The drydocks at Hull were used for examination and repair of vessels using the port, and there might be difficulty in allowing them to be occupied by vessels requiring extensive repair to the exclusion of regular vessels. The L.N.E.R. Company had not been approached by the ship-repairers for two or three years. When last approached a reduction was made which meant a considerable loss on the drydock earnings, and so far as the Company had been able to trace the suggestion of the repairers that the reduction would bring considerably increased business had not been borne out. Mr. A. Whitehead, Secretary of the Chamber of Commerce, mentioned that apart from drydock charges Hull was the cheapest port in the country in the matter of dock charges, and added that recently the Chamber had made representations to the L.N.E.R. Company to look into the question of drydock charges with a view to revision and reduction.

A new dock projected by the Aire and Calder Navigation at Goole near Albert Street has been abandoned in favour of an alternative scheme under which bays are to be constructed on each side of the Goole Canal between the docks and the L.N.E.R. main line. The chief advantages of the new plan are that the excavation work will be much less costly and that the building of another bridge will be avoided. The Aire and Calder Navigation have made substantial progress with a new entrance lock from the river designed to accommodate vessels up to 4,000 tons gross register. Works at Goole are also contemplated by the London Midland and Scottish Railway Company at the West Dock, involving an estimated expenditure of £110,000.

Port of Southampton Topics.

Looking Forward.

THE year that has just closed has seen the development of Southampton carried a big step forward, and it is safe to prophesy that 1930 will witness in its turn the breaking of all previous records.

By the end of 1930 it is estimated that the first 1,000-ft. of the new deep-water quay wall of the docks extensions will be almost complete. Work will continue on the whole of the first part of the scheme now being undertaken, and since the last of the monolith shoes is expected to be assembled in the early part of the New Year, the process of constructing the entire 3,800-ft. of quay will progress rapidly. Meanwhile, dredging will continue and the work of reclamation will be begun. Towards the end of the year the construction of the new shed which will front the first 1,000-ft. of quay will be carried out, together with the preparation of other dockside equipment, such as railway lines and cranes.

The coming year will witness the arrival of seven large liners making their maiden voyages from Southampton, and at Easter the " Isle of Guernsey " and the " Isle of Jersey," the two new cross-Channel steamers of the Southern Railway, will make their appearance.

The first of the big ships to make its appearance will be the " Europa," the 50,000 tons sister of the record-breaking North German Lloyd liner " Bremen." She is due to call at the port on her way to New York on March 20th. Next in size come the two new motorships being built for the Union Castle Line, the " Winchester Castle " and the " Warwick Castle," both vessels of 20,000 tons. The first of these, the " Winchester Castle," is expected to make her maiden voyage in August.

Important developments are to take place during the year on the two services maintained from Southampton to the Dutch East Indies. Four new motorships have been built for this trade, two by the Rotterdam-Lloyd and two by the Nederland Royal Mail Line of the former Company's vessels, the " Baloeran " and " Dempo," each of 18,000 tons. The first to sail will be the " Baloeran," which will leave Southampton on April 18th. The first of the Nederland pair to leave, the " Johan van Oldenbarnevelt," will make her maiden voyage on May 8th.

Other items of interest to Southampton during the year will be the launch of the new 40,000 ton liner " Empress of Britain," and the call to be made at the port by the new " Empress of Japan." Both these ships are being built for the Canadian Pacific Company, and while the "Empress of Japan" will be for Pacific service, she will leave Southampton for Vancouver on July 12th. Local interest is centred to a greater extent on the " Empress of Britain," for this luxury vessel will set up a new standard of travel between this country and Canada.

Large Assembly of Shipping.

Southampton is familiar with the sight of the world's biggest ships in the harbour and docks, but at the early part of the month there was such an array of great vessels at the port that the occasion was one of more than passing interest. The assembly was all the more remarkable for the time of the year, for, while it is common in the height of summer to find the biggest ships in and out of the docks each day, the winter movements are of necessity greatly restricted. Overhauls, on the other hand, often result in two or three vessels at a time being in port. The month's activity began with the arrival of the " Berengaria " (52,226 tons) from New York, and as she was moored in the Ocean Dock she rested within a stone's throw of the " Aquitania " (45,647 tons), which is associated with her in the Cunard express service between Southampton and New York. The " Majestic " (56,621 tons) was also in Ocean Dock, and no sooner had she cleared from the harbour than the " Leviathan " (59,956 tons) put in an appearance. The " Bremen," the biggest German boat, was also in the port, and the following day the " Olympic " (46,439 tons) arrived, while the " Leviathan " sailed after a stay of merely 46 hours in the port.

Pilots Enforced Journeys.

Southampton pilots will have good cause to remember the storms which raged round the Southern Coast during the early part of the month, for five of them had to make trips in the vessels they piloted from the port because the weather was too rough for them to leave when the ship got out of the harbour. Not within living memory has a similar condition of affairs been experienced at Southampton.

The pilots who made the enforced journeys were: Mr. George Tubbs, who was obliged to make the trip to New York on the Holland-America liner "Statendam"; Mr. George C. S. Pearce, who went to Bremen on the North German Lloyd liner "Munchen"; Mr. F. E. Tubbs, who went to London on the R.M.S.P. " Dinteldijk "; Mr. H. A. Barron, who went to Cherbourg on the " Lancastria "; and Mr. G. Lawson, who was carried to Madeira on the " Edinburgh Castle."

Large Arrivals of Wool from South Africa.

The past month has seen the South African wool season getting into full swing, and large cargoes of wool have been arriving at Southampton. The usual mail and passenger liners

Port of Southampton Topics—continued.

have been bringing many bales of wool (the "Saxon" brought 10,000 bales) and during the height of the season other Union Castle vessels which usually do not call here will do so to unload wool.

Christmas time has also seen the beginning of the Cape fruit season as affecting Southampton. Thousands of boxes of South African apricots have already arrived. At the height of the fruit season it is a common thing for the inward Cape liners to bring as many as 120,000 boxes, but such large shipments do not reach Southampton until the New Year.

Hamburg-America Line Speeding-up Atlantic Trip.

The re-engining of four of the largest liners of the Hamburg-America Line will have the result of reducing the time of the voyage across the Atlantic between Southampton and New York from nine to seven days, and consequently Southampton, which watches with interest the competition of the different companies, will pay particular attention to the "Hamburg," the first of the quartette to reappear after the alterations, when she reaches Southampton on February 14th. The "Hamburg," "Albert Ballin," "New York" and "Deutschland" are the four vessels concerned. They have been provided with new turbines, and it is claimed thta the speeded-up voyages will be accomplished without sacrificing smoothness and steadiness. The "Hamburg" will be followed on March 22nd by the "Albert Ballin," the "New York" will be ready a month later, and in May the "Deutschland" will reappear.

The Hamburg-America liner "Reliance," which sailed from Southampton in the early part of December, will not return to the port until April, as during the intervening months she will be engaged on cruises to the West Indies. Her sister ship, "Resolute," opened the pleasure cruises to the West Indies and the Spanish Main in December.

The German African services have made an alteration in their sailing schedule which will have the effect of giving them two extra vessels each month at Southampton. The "Wangoni" and the "Ussukuma," which have been on the West African run, will revert to the South African service, while the "Wadai" and the "Wahele," which will be mainly responsible for the West African service, will call at Southampton. These two vessels, which are smaller than the "Wangoni" and the "Ussukuma," used to call at Southampton, but discontinued when the larger vessels went on the West African service. The "Wangoni" is reverting to the South African run in January, and will make her first sailing from Southampton under the new schedule on January 9th. Both the "Wangoni" and the "Ussukuma," which are vessels of 7,800 tons, are being overhauled at Hamburg.

Southampton and East Asiatic Line.

The regularity with which the vessels of the East Asiatic Line have called at Southampton this season to embark passengers for the Far East encourages the hope that before long the name of the company may be associated with those whose schedule of ports definitely includes Southampton. There is ample indication that a passenger connection from this port is being established on a firm basis. The East Asiatic Company was among the pioneer organisations in the adoption of the motor ship, and their fleet consists almost entirely of that type of vessel to the number of about 24.

Cunard Line and Winter Cruises.

During the winter months Southampton becomes the starting point of innumerable pleasure cruises "in search of the sun." Many of the big liners are utilised for these cruises, and this new form of winter holiday is finding increasing support each year. The Cunard programme of winter cruises started in December and will continue until June. Eighteen cruises will be made, and the vessels taking part are the "Mauretania," "Franconia," "Carinthia," "Scythia," "Samaria," "Laconia," "Caledonia," and "Transylvania." There will be nine short trips to the West Indies, and six journeys to the Mediterranean. Other trips include a round the world voyage, cruises to South America, the Atlantic Isles and North Africa.

New Invention for Launching Lifeboats.

Marine superintendents of the principal shipping companies centred at Southampton witnessed an interesting demonstration of lifeboat launching when the Red Star liner "Lapland" called at the port. They assembled at the invitation of Captain A. P. Schat, who has invented an ingenious skate, self-braking lowering block and an inclined boat chock, by means of which, it is claimed, lifeboats can be safely launched from a ship to the water, however great the list. The skates, two of which are fitted on the inboard side of each lifeboat, comprise a strip of steel strengthened on either side by stout wooden blocks, and the whole is curved so as to protect the side of the boat from the keel upwards. In the event of a ship having a heavy list the lifeboats slip down the inclined boat chocks until they are over the ship's side, and they then slide smoothly to the water by means of the two skates affixed to their sides.

Popular Commander Retires.

When the Union Castle liner "Arundel Castle" reached Southampton on December 9th, the long and meritorious seafaring career of Captain Stanley H. Owen, the commander of the vessel, came to a close. A very popular commander, Captain Owen served the old Castle Line, and later the Union Castle Steamship Co. for 39½ years, and during the 22 years that he held command he had charge of 21 of the company's vessels. Captain Owen joined the Castle Line in 1880, and after his promotion to First Officer in 1901 he took command of the "Sabine," a vessel engaged in the Cape Coast trade. In the next few years he commanded successively a number of the Company's passenger vessels, and when war broke out in 1914 he was in charge of the "Dunvegan Castle," a command which he continued almost throughout the war. Captain Owen commanded the "Gloucester Castle" when that vessel re-entered the Company's service after being reconditioned following war work as a hospital ship. In 1921 he was transferred to the "Goorkha," and after 17 months joined the "Dunluce Castle." In 1925 he took a temporary mail command in the "Saxon," and after taking charge for a time of the new "Llandovery Castle" he received, in 1926, his first regular mail command in the "Kenilworth Castle." Subsequently he had charge of the "Saxon," "Armadale Castle," "Walmer Castle," "Edinburgh Castle," and "Balmoral Castle," before being appointed to the "Arundel Castle" in October, 1928. On Captain Owen's last voyage members of the crew presented him with a large framed photograph of himself.

Superintendent Wharfinger Resigns.

Mr. David S. Irvine, for the past five years the popular Superintendent Wharfinger to the Cunard Line at Southampton, has been compelled to resign owing to ill-health. He is succeeded by Captain Albert Edward Kenyon, R.D., R.N.R., who has spent several years in the "Aquitania" and the "Berengaria." For over four years he was first or chief officer in the "Aquitania," and then he was chief officer of the "Berengaria" for two years. A native of Stockport, Captain Kenyon first went to sea in the full-rigged ship "Rajore" as an apprentice. Later he joined the New York-South American Line, and in 1911 he threw in his lot with the Cunard Line, his first appointment being as seventh officer of the "Campania."

A New Marconi Director.

The Marconi International Marine Communication Co., Ltd., announce that Mr. James O'Beirn, M.B., D.Ph., of "Seapark," Taylor's Hill, Galway, has been appointed a director of that Company.

The Kusten Canal.

In contradiction of reports to the effect that the continuation of the Kusten Kanal is to be again postponed, it is now known that orders for the work on the last portion east of the road from Boekhorst to the Oldenburg border on Prussian territory are to be allocated. More than 50 firms from all over Germany have made offers, among them being leading firms.

Port Dues in Yugoslavia.

The Department of Overseas Trade has received from the Commercial Secretary at Belgrade the following list of official rates of exchange for the payment of port dues in Yugoslavia during the month of December, 1929, which appeared in the "Official Gazette" of November 27th:—

	Dinars
1 Gold Napoleon	218·00
1 Pound Sterling	275·50
1 American Dollar	56·40
1 Canadian Dollar...	56·10
1 German Mark (Gold)	13·50
1 Belga	7·90
1 Brazilian Milreis	6·80
100 Gold Francs	1095·80
100 French Francs	222·20
100 Italian Lire	295·60
100 Dutch Florins	2275·00
100 Roumanian Leis	33·60
100 Danish Crowns	1511·00
100 Swedish Crowns...	1517·00
100 Norwegian Crowns	1511·00
100 Pesetas	785·00
100 Greek Drachmas...	73·30
100 Finnish Marks	142·00
100 Latvian Lat	1089·50

Personal enquiries regarding shipping and transport matters should be made at the City Office of the Department (Shipping and Transport Section), 73, Basinghall Street, London, E.C.2.